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1.00 GENERAL CONSIDERATIONS

1.01 APPLICABILITY

These Standards shall apply to all new construction of public and private roads in Spokane County and as far as practicable and feasible to reconstruction, resurfacing, restoration, and rehabilitation of old roads comprising the Spokane County Road System. The Standards are applicable to both public and private work on roads within Spokane County. In case of any ambiguity or dispute over interpretation of the provisions of these Road Standards, the decision of the County Engineer shall be final but subject to the review process described in 1.08 "Deviations and Review of Decision". Prior to the issuance of a building permit, a lot, parcel, or tract of land shall have access by a driveway, private road, or public road.

1.02 DEFINITIONS

1. "3-R" shall mean a construction activity that involves the resurfacing, restoration, or rehabilitation of an existing road.
2. "All-weather road" shall mean a gravel or paved road described under Section 1.07 "Non-Conforming Private Roads" of these Standards and Title 3.05.050 of the Spokane County Code. The traveled way shall have a two-percent crown and, be surfaced with a minimum of four inches of Crushed Surfacing Top or Base Course.
3. "Border" shall mean the portion of a street between the edge of pavement and the right-of-way line or the area between the edge of shoulder and the right of way line. This area is used for curbing, planting areas, sidewalk, utilities, etc.
4. "Border easement" shall mean the areas on curbed roads, between the right of way line and the back of sidewalk dedicated as an easement.
5. "Change of Use" shall conform to the provisions of the Uniform Building Code.
6. "Clear Zone" is used to designate the unobstructed area provided beyond the edge of the traveled way for the recovery of errant vehicles.
7. "County Engineer" is the Spokane County Engineer, having authorities specified in RCW 36.75.050 and 36.80, or an authorized representative.
8. "Cul-de-sac" is a short street having one end open to traffic and ending with a vehicle turnaround, either permanent or temporary.
9. "Curb Ramp" shall mean a short, depressed section of curb and sidewalk, normally placed at street intersections, designed to facilitate travel of physically disadvantaged persons.

10. "Design Deviation Review Panel" shall mean an advisory review panel selected by the County Engineer to review deviation request denials. The panel consists of three professional engineers, two from public service and one from the private sector.
11. "Driveway" shall mean private driveways that provide primary vehicular access from a public or private road to up to three lots.
12. "Driveway Approach" shall mean any area, construction or facility between the roadway of a street and private property to provide access for vehicles from the roadway of a street to serve up to three lots, tracts or parcels, except as provided herein.
13. "Engineer" shall mean a Professional Engineer licensed by the State of Washington.
14. "Established County Road" shall mean a road that has been accepted by Spokane County for maintenance with public funds.
15. "Established Grade" shall mean the profile and cross-sections approved by the County Engineer.
16. "Final Approval" shall mean the signature of the County Engineer on the final plat map, short plat, binding site plan, or commercial building permit release, or the County Engineer's concurrence for approval of a certificate of occupancy.
17. "Half-street" is an access street completely constructed on one side of the centerline plus the twelve-foot lane on the opposite side of the centerline. .
18. "Hazard" shall mean a side slope steeper than 3:1 (horizontal/vertical), a fixed object, or water which, when struck, would apply unacceptable impact forces on the vehicle occupants or place the occupants in a hazardous position. It may be natural or manmade.
19. "Level of Service" (LOS) is a qualitative measure of traffic flow. Six levels are defined as "A" through "F" with "A" being the best operating conditions and "F" being the worst. (See Highway Capacity Manual)
20. "Private Road" shall mean privately owned vehicular access route serving more than three lots, parcels, or tracts which do not have frontage on a public road right-of-way. Spokane County does not maintain private roads.
21. "New Construction" shall mean the construction of a new roadway or structure on a new alignment. It also means the upgrading of an existing roadway or structure by the addition of one or more continuous traffic lanes.
22. "Planting Strip" shall mean the space between the edge of the pavement or the back of the curb and the sidewalk.

23. "Project" shall mean the design and construction of infrastructure associated with land development activities.
24. "Project Agreement" shall mean a written agreement between Spokane County and the Sponsor, in a form acceptable to the Spokane County Prosecuting Attorney, stipulating obligations of the Sponsor and Spokane County regarding the project (a model agreement is shown in Technical Reference C of these Standards).
25. "Public Road" where used in these standards, shall mean an established County road.
26. "Reconstruction" shall mean major construction of an existing road greater than 3-R. Reconstruction includes significant changes in cross section and/or shifts in vertical or horizontal alignment. A project is considered reconstruction if 50% or more of the project length involves significant vertical or horizontal alignment change.
27. "Record Drawings" shall mean the plan set, which is certified to contain a true and accurate representation of the actual field, conditions for the project during construction, or upon completion of construction.
28. "Resurfacing" shall mean the addition of a layer or layers of paving material to provide additional structural integrity or improved profile and serviceability. This includes paving existing gravel roads if the improvement is not reconstruction as defined in paragraph 26 of this section.
29. "Restoration" shall mean work done on pavement or bridge decks to prepare them for an additional stage of construction. This may include supplementing the existing roadway by increasing surfacing and paving courses to provide structural capability, widening up to a total of 10 feet, and installing localized safety improvements. Restoration will generally be done within the existing right of way.
30. "Rehabilitation" shall mean work similar to restoration except the work may include but is not limited to the following:
 - A. Reworking or strengthening the base or subbase
 - B. Recycling or reworking existing materials to improve their structural integrity
 - C. Adding underdrains
 - D. Replacing or restoring malfunctioning joints
 - E. Substantial pavement undersealing when essential for stabilization
 - F. Grinding of pavements to restore smoothness, providing adequate structural thickness remains
 - G. Removing and replacing deteriorated materials

- H. Crack and joint sealing but only when required shape factor is established by routing or sawing
 - I. Improving or widening shoulders
31. "Road" and "Street" will be considered interchangeable terms in these Standards.
32. "Roadway" shall mean the portions of a street, including shoulders but excepting concrete gutters, designed or ordinarily used for vehicular travel.
33. "Rural" shall mean a location outside of the current Urban Growth Boundary as adopted by The Board of County Commissioners.
34. "Sponsor" shall mean the party identified as the proponent of a development action. The Sponsor is responsible for preparing plans and for constructing of infrastructure to support the proposed action or project as required by the Standards.
35. "Sponsor's Engineer" shall mean:
- Design phase - the Design Engineer who directly prepared plans and calculations, or who directly supervises the preparation of project plans and calculations. The Design Engineer seals, signs and dates the plans and calculations, certifies that they meet the required standards, and approves the plans for construction. Also known as the "Engineer of Record", the Design Engineer may also act in capacity of the Construction Engineer.
- Construction phase - the Construction Engineer who directly inspects, or who directly supervises the inspection of the construction of a project to ensure compliance to the plans and standard specifications. The Construction Engineer maintains and certifies the Record Drawings. The Construction Engineer may have also acted in the capacity of the Design Engineer.
36. "Standards" shall mean the requirements contained in the "Spokane County Standards for Road and Sewer Construction"
37. "Street" is intended to include any avenue, street, court, alley, or other public passageway within the Spokane County.
38. "Substantial Completion" shall mean that (1) Spokane County and/or any applicable homeowner association must have full and unrestricted use and benefit of the facilities, both from an operational and a safety standpoint; (2) The facilities must conform to the Conditions of Approval and the Standards; (3) and only minor, incidental repair work, replacement of temporary substitute facilities remains to reach physical completion of the work.

39. "Surety" shall mean a financial guarantee by the Sponsor, naming Spokane County as beneficiary, that infrastructure required for a project will be constructed and certified according to the plans and specifications and all applicable Standards. The financial guarantee may be in the form of a cash savings assignment, letter of credit, or bonding company instrument. The language of the surety document must be acceptable to the Spokane County Prosecuting Attorney's Office.
40. "Surveyor" shall mean a Professional Land Surveyor licensed by the State of Washington.
41. "Traffic Barrier" shall mean a barrier oriented parallel or nearly parallel to the roadway. The purpose of these devices is to contain or redirect errant vehicles from hazards within the clear zone.
42. "Traffic Impact Study" shall mean a report that documents a study of traffic conditions before and after construction of a proposed development. It addresses any deficiencies in the transportation system, either current or after development, and proposes recommended mitigation to correct those deficiencies. (See Technical Reference A)
43. "Traveled way" is comprised of the through traffic lanes. It is the portion of a street designed or ordinarily used for vehicular travel excluding shoulders, medians, bicycle lanes, or exclusive turn lanes.
44. "Urban" shall mean a location within the current Urban Growth Boundary as adopted by the Board of County Commissioners.

1.03 RESPONSIBILITY TO PROVIDE

All development shall include provision for construction or improvement of the road according to these Standards. The Sponsor's Engineer shall consider the following guidelines in planning transportation systems.

1. Adequate vehicular and pedestrian access should be provided to all parcels of land.
2. Local access streets should be designed to minimize through traffic movements and excessive speeds.
3. Street patterns and names should be logical, consistent and understandable to satisfy the needs of emergency and delivery vehicles.
4. Vehicular and pedestrian-vehicular conflict points should be minimized. The Sponsor's Engineer should use Tee intersections on local access systems. Four-way intersections should be minimized on local access roads.
5. Traffic generators within the project should be considered and the street system designed appropriately.

6. The Sponsor's Engineer should consider bordering arterial routes and should provide design continuity.
7. No direct residential lot access should be allowed to urban principal and minor arterials.
8. When a subdivision has the cumulative effect of creating a total number of lots, parcels, or tracts served by an access road equal to or greater than the number of units shown in the following table, the Sponsor shall provide an additional access road into the development to serve fire district vehicles. The location of the additional access road shall have the concurrence of the fire district. If the location and layout of a development, in the opinion of the fire district authorities, causes a concern for safety, an additional access road may be required regardless of the values shown in the following table.

Setting	Units
Apartments/Attached Housing*	100
(2u/a - 11 u/a	50
(0.25 u/a - 1.99 u/a	30
0 u/a - 0.25 u/a	20

* Privately owned access roads may be closed with a gate. No locking gates will be allowed without approval of the fire district.

9. The Sponsor's Engineer shall consider ease of maintenance when designing public roads.

1.04 REFERENCES

These Standards are intended to be consistent with the following references, as amended:

1. City and County Design Standards for the Construction of Urban and Rural Arterial and Collectors adopted February 10, 1994 per RCW 35.78.030 and RCW 43.32.020.
2. Spokane County Subdivision Ordinance Resolution No. 80-0424, dated March 24, 1980.
3. Washington State Local Agency Guidelines.
4. "A Policy on Geometric Design of Highways and Streets" published by the American Association of Highway and Transportation Officials (AASHTO).
5. "Highway Capacity Manual" (Special Report 209) published by the Transportation Research Board, National Research Council.

6. "Roadside Design Guide" published by the American Association of Highway and Transportation Officials (AASHTO).
7. Spokane County Comprehensive Plan including the Arterial Road Plan.
8. Spokane County Zoning Code.

1.05 NOT USED

1.06 STATE SPECIFICATIONS AND PLANS

Except where stated in these Standards, design and construction shall conform to the current editions of the following Washington State Department of Transportation publications, as adopted by Spokane County:

1. Standard Specifications for Road and Bridge Construction. It will be referred to as the "Standard Specifications."
2. Standard Plans for Road and Bridge Construction.

1.07 NON-CONFORMING PRIVATE ROAD

A non-conforming private road is an access easement (1) recorded with the Spokane County Auditor (Record-of-Survey, easement document, other) and (2) approved by Spokane County (Certificate-of-Exemption issued prior to May 15, 1995, building permit, other) as a private road.

Private roads will not be required to comply with the provisions of these standards if all of the following conditions exist:

1. The roads are located within easements recorded prior to May 15, 1995.
2. The roads have all-weather surfaces and comply or can be made to comply with the provisions described in Section 3.05.050 of Title 3 of the Spokane County Code, as amended.

Private roads constructed according to Spokane County Standards on or after May 15, 1995 and before the effective date of this ordinance shall be deemed as non-conforming and shall not be required to comply with the provisions of these Standards.

1.08 DEVIATIONS AND REVIEW OF DECISION

1. Deviations from these Standards may be granted by the County Engineer in writing upon written evidence from the Project Sponsor that the proposed deviation does not conflict with or modify a condition of approval, and

2. deviations are based upon sound engineering principles, and
3. deviations meet requirements for safety, function, appearance, and maintainability.

Desired deviations must be approved before road plans are accepted for residential development. Deviations must be approved before commercial building permits are issued. The County Engineer may apply conditions to the approval of design deviations. The conditions may not have been required in the preliminary plat approval. In case of a denial of a deviation request, the Developer may request a review and reconsideration of the denial. The Design Deviation Review Panel will review the deviation request and make a recommendation to the County Engineer. The County Engineer will then consider the recommendation of the Design Deviation Review Panel and render a final decision on the deviation request.

1.09 NOT USED

1.10 COMPLIANCE REVIEW

In the event an Engineer or Surveyor submits plans, calculations, or record drawings that are not in compliance with these Standards, the County Engineer may refer the case to the Director of Public Works for consideration.

Decisions of the Director of Public Works may be appealed to the Board of County Commissioners. Failure to comply with these Standards will be cause for withholding or withdrawing approval of permits, plats, forfeiture of bond, and/or other penalties as provided by law.

1.11 ROADWAY TYPES

The types and widths of County streets are shown in Tables 3.01, 3.02, and 3.03. Standard Plan sheets entitled "Roadway Section-Curbed" and "Roadway Section-Shouldered" show typical roadway cross-sections. Curbed streets shall be constructed on roads within an urban land use classification. The County Engineer may also require curbs in other land use classifications near schools or commercial establishments.

1.12 ROADWAY CLASSIFICATIONS

1. RURAL ARTERIAL SYSTEM

- A. Major Collector Arterial - These routes (1) serve County seats on arterial routes, larger towns not directly served by the higher systems, and other important traffic generators, such as consolidated schools, shipping points, County parks, and important mining and agricultural areas; (2) link these

places with nearby larger towns or cities, or with routes of higher classification; and (3) serve the more important intracounty travel corridors.

- B. Minor Collector Arterial - These routes should (1) be spaced at intervals consistent with population density to accumulate traffic from local routes and bring all developed areas within reasonable distance of collector roads, (2) provide service to remaining smaller communities, and (3) link the locally important traffic generators with their rural hinterland.

2. URBAN ARTERIAL SYSTEM

- A. Principal Arterial Street - The urban principal arterial system serves the major centers of activity of urbanized areas. They are the highest traffic volume corridors and have the longest trip desires. Principal arterials carry a high proportion of the total urban area travel on a minimum of mileage. Access to principal arterials may be controlled or uncontrolled. The system should be integrated internally and between major rural connections. The principal arterial system carries most of the trips entering and leaving the urban area, and most of the through movements bypassing the central city. This class of facility serves significant intra-area travel. This includes travel between central business districts and outlying residential areas, between major inner-city communities, and between major suburban centers.

Frequently, the principal arterial system carries important intra-urban and inter-city bus routes. Finally, in urbanized areas, this system provides continuity for all rural arterials that intercept the urban boundary. (AASHTO, 1990, page 13).

- B. Minor Arterial Street - The minor arterial street system interconnects with and augments the principal arterial system. It provides trips of moderate length at a lower level of travel mobility than principal arterials do. This system distributes travel to geographic areas smaller than those identified with the higher system. The minor arterial street system includes all arterials not classified as principal. Minor arterials system place more emphasis on land access than the higher system does and offers lower traffic mobility. Such a facility may carry local bus routes and provide intra community continuity but ideally does not penetrate identifiable neighborhoods. Minor arterials include urban connections to rural collector roads where such connections have not been classified as principal arterials for internal reasons. (AASHTO, 1990, page 14).

3. COLLECTOR SYSTEM

The collector street system provides both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas. It differs from the

principal and minor arterial systems in that facilities on the collector system may penetrate residential neighborhoods, distributing trips from the arterials through the area to their ultimate destinations. Conversely, the collector street also collects traffic from local streets in residential neighborhoods and channels it into the arterial system. The collector street system may also carry local bus routes. (AASHTO, 1990, page 15).

4. ACCESS ROADS

Access roads allow direct access to abutting lands and connections to the higher order systems. They offer the lowest level of mobility and usually contain no bus routes. Access roads should be designed to discourage service to through-traffic movement.

1. Industrial/Commercial - Industrial local access streets abut manufacturing facilities, processing plants, or warehousing facilities, stores, dense multiple family dwellings, commercial sources, office and professional buildings.
2. Residential Access - Through streets, loop streets and cul-de-sac streets that provide access to homes connecting to a collector arterial or other residential access streets. These roads do not support through traffic.

1.13 HALF-STREET

A half-street is permitted as an interim facility. Half-streets may be used pending construction of the entire street by the owner on the opposite side of the road. On roads thirty feet in width or less, the entire width of the road, except the outer six feet of pavement, curb, and sidewalk on one side, shall constitute a "half-street". A two-foot gravel shoulder shall be constructed next to the pavement on the interim side for roads with a permanent width of twenty-eight feet or less.

1.14 PRIMITIVE ROADS (SUMMER ROADS)

Primitive roads are existing, rural, low-volume, unpaved, access roads and are designated as such by a sign at all places where the primitive road portion begins or connects with a highway or road other than a primitive road. These roads are not fully maintained roads. Maintenance occurs as needed, on an irregular basis within system-wide priorities, only during the summer months. Snow removal is not performed on these roads. Primitive roads are usually not constructed to proper design standards and do not have warning nor regulatory traffic signs.

1.15 NOT USED

1.16 ROAD NAMES

The Sponsor may suggest road names within a development. Road Names will be reviewed by the County Engineer and modified as necessary to conform to regulations. Road name designations shall be as follows:

1. All streets located outside the metropolitan area shall be called Roads.
2. All North-South streets shall be called Streets.
3. All East-West streets shall be called Avenues.
4. Streets in large subdivisions that do not have a definite directional course shall be called Drives.
5. A dead-end street or cul-de-sac when not an extension of an existing street or a continuation of any future street shall be called a Court.
6. A street that lies diagonally to the east-west, north-south grid system and is an arterial or collector street shall be called a Boulevard.
7. A street that has its ingress and egress on the same street shall be called a Circle.
8. A private road shall be called a Lane.

1.17 – 1.19 NOT USED

1.20 LEVELS OF SERVICE

The County Engineer has established acceptable Levels of Service (LOS) for traffic at Spokane County intersections. Levels Of Service are used in determining the impacts on the road system by land development proposals. The minimum acceptable LOS are:

1. signalized-"D"
2. unsignalized-"E"

1.21 - 1.29 NOT USED

1.30 TRAFFIC IMPACT STUDY

Prior to a land use action, the Sponsor shall perform a traffic impact study when the project meets the criteria of one or more of the items listed below. A specific scoping by the County Engineer may range from an in-depth analysis of site generated levels-of-service to a cursory review of safety issues. The County Engineer shall determine the specific project scope. The Sponsor shall submit a traffic report signed by a Professional Engineer, licensed in the State of Washington. The traffic impact study shall be performed in accordance with Technical Reference A of these Standards.

1. The County Engineer determines that the proposed development will generate enough peak hour trips to lower or aggravate the minimum acceptable LOS.
2. The County Engineer determines that driveways from the land development proposal have the potential to generate traffic safety problems on the adjacent public roadway.
3. The County Engineer determines that an existing route with a history of traffic accidents will be further impacted by an increase in traffic from the proposal.

1.31 - 1.39 NOT USED

1.40 SEVERABILITY

If any part of the Spokane County Guidelines for Road and Sewer Construction as established by ordinance shall be found invalid, all other parts shall remain in effect.

2.00 ROAD TYPES & GEOMETRIC FEATURES

1. County roads are classified functionally as shown in subsections 1.12. Based on these classifications the criteria for right of way, road width, and other geometric features shall be as stated. Function is the controlling element for classification. Access, spacing, ADT¹ and DHV² are merely typical.
2. Terrain is a basis for further classification of geometric requirements.
 - A. Flat terrain is that condition where roadway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense. The slope of the existing terrain is from 0% to and including 5%.
 - B. Rolling terrain is that condition where the natural slopes rise above and fall below the roadway grade line consistently. Normal roadway alignment is restricted some by occasional steep slopes. The slope of the existing terrain is from 5% to and including 15%.
 - C. Mountainous terrain is that condition where longitudinal and transverse changes in the elevation of the ground with respect to a roadway are abrupt and where the roadbed is obtained by frequent benching or side hill excavation. The slope of the existing terrain exceeds 15%.

Terrain classification pertains to the general character of the specific route corridor. Roads in valleys or passes of mountainous areas that have all the characteristics of roads traversing flat or rolling terrain should be classified as flat or rolling. In rolling terrain, trucks reduce their speeds below those of passenger cars on some sections of roadway. Mountainous terrain is responsible for some truck operation at crawl speeds. In cases where the terrain classification is in question, the County Engineer shall make the final decision.

The terrain classification will be determined at the pre-submittal meeting, as described in Section 5.01.

-
1. Average Daily Traffic
 2. Design Hourly Volume

3.00 NEW CONSTRUCTION DESIGN STANDARDS

3.01 COUNTY ARTERIAL AND COLLECTOR STREETS

Standards for construction of new arterial roads and reconstruction of existing arterial roads within Spokane County shall follow the criteria shown on Tables 3.01 Arterial and Collector Street Design Elements and Table 3.02 Arterial and Collector Street Design Elements - Minimum Widths. "A Policy on Geometric Design of Highways and Streets" (AASHTO) shall govern all design elements not shown in these standards.

3.02 COUNTY ACCESS STREETS

Standards for construction of new access roads and reconstruction of existing access roads within Spokane County shall follow the criteria shown on Table 3.03 Access Street Design Elements. "A Policy on Geometric Design of Highways and Streets" (AASHTO) shall govern all design elements not shown in these standards.

3.03 TYPICAL ROADWAY SECTION

The County Engineer shall for each application designate typical roadway sections using the widths shown in Tables 3.01, 3.02, and 3.03 of these Standards. In selecting the roadway section to be applied, the County Engineer will review and give consideration to certain factors in connection with the proposal, including but not necessarily limited to the functional classification of the roadway, traffic volume, the terrain, density of the proposed or existing development, the proposed or existing zoning, the existing roads in the immediate area, the cost relationship of the proposed improvements, the surrounding developments, and other such factors as are deemed significant of the proposal being reviewed in light of public health, safety and welfare.

3.04 INTERSECTIONS

The minimum curb-return radius at intersections on an arterial road shall be thirty feet. Private curbed roads 24 feet or narrower shall have return radii of 30 feet. The minimum curb return radius at all other intersections shall be twenty feet. Larger radii may be required where truck traffic is a significant factor. Where trucks are a significant factor, the County Engineer shall decide the size of the return radii.

The right of way at curb returns on arterial streets shall allow space for future signal foundations.

All intersections shall be designed at right angles to the intersecting road, where possible. If a right angle is not possible, the skew angle shall not vary more than 15 degrees from a right angle. At four legged intersections, opposite legs shall lie on a straight alignment where possible. The minimum distance between intersections on a County road shall be:

- 300 feet for any road intersecting with a principal or minor arterial.
- 150 feet for any road intersecting with a local access or collector arterial .

Distances are measured from the centerline of the intersecting road to the centerline of the next intersecting road.

The cross slope of the higher priority roadway shall be extended through the intersections. The grade of the crossroad shall be adjusted to meet the cross slope of the higher priority roadway.

The road approach area is where vehicles store while waiting to enter an intersection, and shall be designed with a nearly flat grade. For public or private roads, the road approach area at a stop-controlled intersection (e.g. stop sign, yield sign, or traffic signal) shall have a downgrade approaching the intersection of no greater than 2.0 percent. An upgrade approaching the intersection shall be no steeper than 4%. The minimum length of the road approach area, measured from the edge of curb face, or traveled way where curbs are not present, is to be in accordance with Table 3.04. For any road classification not listed in Table 3.04, the County Engineer may require a traffic analysis to determine the road approach length.

Average Daily Traffic (ADT) of Higher Priority Road	Minimum Road Approach Length (2% Maximum Downgrade and 4% maximum upgrade)	
	Local Access Streets & Private Roads ⁽¹⁾	Collector Arterials ⁽²⁾
ADT < 1000	25 ft.	50 ft.
1000 < ADT < 5,000	50 ft.	75 ft.
5,000 < ADT < 7,000	75 ft.	100 ft.
7,000 < ADT < 9,000	75 ft.	analysis required

Notes:

- (1) Using a threshold of 70 peak hr left turns
- (2) Using a threshold of 110 peak hr left turns

Table 3.04

3.05 BORDER EASEMENTS

On curbed roads, with separated sidewalks, border easements shall be granted to Spokane County and shall be described in the plat dedication. Border easements shall include the area from the right-of-way line to the back of sidewalk and shall run the total length of the road on both sides. The abutting property owner shall maintain sidewalks,

driveways, and landscaping within the border easements. Spokane County will maintain drainage inlets, grates, pipes, and drywells used for disposal of public road drainage.

Fences shall not be constructed inside the easement. The border easement area shall be kept clear of other objects that would obstruct a driver's view. The sidewalk shall be open for use of pedestrian traffic at all times. The easement shall be available for use by utility companies.

3.06 NOT USED

3.07 SLOPES

The steepest slope for embankment or excavation shall normally be 2:1 (horizontal/vertical). Approval of steeper slopes will require a report signed by a licensed engineer qualified in soils testing and analysis.

The Sponsor's Engineer shall provide a space between the catch point of the slope and the right of way line on shouldered roads side slope of 3:1 or steeper. This space provides for utility poles, fences, sloped rounding, etc. The minimum distance of this space shall be five feet.

Embankment slopes constructed with native soil or imported soil shall not be steeper than an inclination of 2:1 for slopes that are 10 feet or greater in height measured vertically from the slope toe to the crest. Embankment slopes less than 10 feet high may be constructed at inclinations not steeper than 1.5:1, provided proper fill placement and compaction criteria, and erosion control are called for in the contract documents. Steeper embankment slopes for any embankment height, including mechanically stabilized earth slopes, may be permitted by the County provided the Sponsor's Engineer can demonstrate that the factor of safety against slope instability (global and internal) is not less than 1.3, and that erosion potential of the slopes will be properly mitigated during construction.

Cut slopes in competent native soils shall not be steeper than an inclination of 1.5:1 unless a qualified geotechnical engineer provides approval for slopes of steeper inclination. Erosion mitigation shall be included in the contract documents.

The terrain or design features of a road may require slope, wall or drainage easements beyond the right of way line. The County Engineer shall require easements or acquisition of right of way.

3.08 RIGHT-OF-WAY

The road right of way width shall be determined by summing the total of widths of all required roadway elements from Tables 3.02 and 3.03 and applying sums to the Standard Plans entitled "Roadway Sections-Curbed" or "Roadway Sections-Shouldered", as applicable.

Minimum Design Elements ¹	Type	Urban Arterial System				Urban Collector System	Rural Arterial System		
	Classification	Principal (Controlled Access)		Principal (Uncontrolled)	Minor	Collector	Minor or Major Collector		
	Construction	Curb	Shoulder	All	All	All	Shoulder ⁵		
	ADT	All	All	All	All	All	Below 400	400-2000	Over 2000
Design Speed (mph)	Flat Rolling Mountainous	55	55	40	40	30	50	50	55
		50	50	40	35	30	40	40	50
		40	40	35	30	30	30	30	40
Horizontal Curve Radius ² (ft)	Flat Rolling Mountainous	1190	1190	575	500	275	765	765	960
		955	955	500	350	275	470	470	765
		500	500	350	230	230	255	255	470
Superelevation (%)	Maximum	4	4	4	4		8	8	8
Grade (%) ³	Maximum	6	6	6	8	8	8	6	6
	Minimum	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Stopping Sight Distance (ft)	Flat Rolling Mountainous	450	450	275	275	200	400	400	450
		400	400	275	225	200	275	275	400
		275	275	225	200	200	200	200	275
Intersection Sight Distance(ft)		AASHTO Chapter IX "Sight Distance" pages 739-766							
Crest Vertical Curves ^{4,6,7} (K)	Flat Rolling Mountainous	150	150	60	60	60	110	110	150
		110	110	60	40	40	60	60	110
		60	60	40	30	30	30	30	60
Sag Vertical Curves ^{4,6,7} (K)	Flat Rolling Mountainous	100	100	60	60	60	90	90	100
		90	90	60	50	50	60	60	90
		60	60	50	40	40	40	40	60

See next page for footnotes.

TABLE 3.01
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS¹

1. In addition, geometric design shall be consistent with "A Policy on Geometric Design of Highways and Street, 1990, AASHTO".
2. Minimum horizontal curves reflect maximum superelevation rates. Flatter rates require longer radius curves.
3. Maximum grades may be exceeded for short distances subject to approval by the County Engineer "(+ 2%)".
4. Length in feet per percent of algebraic grade difference. (K value). $L = K \times \text{Algebraic difference in grade}$. Sponsor's Engineer may use method shown in AASHTO pgs. 281 through 295
5. Curbed Rural Collectors shall be designed using Urban Minor standards.
6. Grade differences less than 1% do not require a vertical curve.
7. Minimum length vertical curve shall be 100 feet.

TABLE 3.01
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS

Type	Urban Arterial System			Urban Collector System	Rural Arterial System		
Classification	Principal		Minor	Collector	Major and Minor Collector		
Construction	Curb	Shoulder	Curb	Curb			
ADT	All	All	All	All	Below 400	400-2000	Over 2000
Painted Center/Left-turn Lanes ⁴	12'	12'	12'	12'	-	-	-
Inside lanes	12'	12'	12'	12'			
Intermediate lanes	12'	12'	12'	12'			
Outside lanes ¹	16'	12'	16'	16'	12'	12'	12'
Shoulder		8'			3'	6'	8'
Border w/ Swale	18'	15'	18'	18'	10'	10'	15'
Border w/o Swale	15'	8'	15'	15'	6'	8'	8'
Roadway Width W) ²	2 lanes	--	44' ³	37' ³	30'	36'	40'
	3 lanes	46'	46'	--	--	--	--
	4 lanes	56'	56'	--	--	--	64'
	5 lanes	70'	78'	--	--	--	--
	6 lanes	80'	102'	--	--	--	--
	7 lanes	94'	--	--	--	--	--
	See Section 3.08						
Right of Way width							

See next page for footnotes.

TABLE 3.02
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS
MINIMUM WIDTHS

1. Traveled lanes of a two-lane road are shown as outside lanes.
2. Distance W is shown on Standard Plan sheet A-1
3. Parking lanes included.
4. Where raised median islands are required, the center lane or left-turn lane shall be fourteen feet in width.

TABLE 3.02
ARTERIAL AND COLLECTOR STREET DESIGN ELEMENTS
MINIMUM WIDTHS

Minimum Design Elements ¹	Classification	Industrial/Commercial		Residential			Private Roads ¹⁰
		All		200 and Above		Below 200	
		Curbed	Shoulder	Curbed	Shoulder ⁵	Shoulder	
Design Speed (mph)	ADT						All
	Construction						All
	Flat Rolling Mountainous	35 30 25	35 30 25	30 30 25	30 30 25	30 30 20	20 20 20
Minimum Horizontal Curve Radius ^{2,6} (ft)	Flat Rolling Mountainous	415 275 165	345 230 145	275 275 165	215 215 135	215 215 75	100 100 100
	Superelevation Rate (%)		4	--	6	6	--
	Grade (%) ³	8 0.5	8 0.5	8 0.5	8 0.5	8 0.5	12 0.5
Stopping Sight Distance (ft)	Flat Rolling Mountainous	225 200 150	225 200 150	200 200 150	200 200 150	150 150 125	125 125 125
	Intersection Sight Distance (ft)	AASHTO Chapter IX Sight Distance pages 739-766					
	Crest Vertical Curves ⁴ (K)	40 30 20	40 30 20	30 30 20	30 30 20	30 30 10	10 10 10
Sag Vertical Curves ⁴ (K)	Flat Rolling Mountainous	50 40 30	50 40 30	40 40 30	40 40 30	40 40 20	20 20 20
	Roadway Width (ft) ^{7,8}	40	40	30	30	28	20 ⁹
	Intersection return radii (ft)	30	30	20	20	20	30
Right of Way Width (ft)							

See next page for footnotes.

TABLE 3.03
ACCESS STREET DESIGN ELEMENTS

1. In addition, geometric design shall be consistent with "A Policy on Geometric Design of Highways and Street, 1990, AASHTO".
2. Where superelevation rate is shown, minimum horizontal curves reflect maximum superelevation rates. Curves with lower rates require longer radius curves.
3. Maximum grades may be exceeded for short distances subject to approval by the County Engineer (+2%).
4. Length in feet per percent of algebraic grade difference (K value). $L = K \times \text{Algebraic difference in grade}$. Sponsor's Engineer may use method shown in AASHTO pgs. 281 through 295. Grade differences less than 1% do not require a vertical curve. The minimum length vertical curve shall be 50 feet.
5. Rural access roads with higher speed limits shall be designed for no less than the speed limit.
6. Minimum radius curves for curbed roads shall be consistent with AASHTO, low speed urban streets standards.
7. Paved roadway width does not include curb and/or gutter section.
8. Includes shared access.
9. Private road width based on number of lots served: 3 to 6 lots = 20 ft.; 7 to 20 lots = 24 ft; 21+ lots = 28 ft. A minimum 10' maintenance and utility easement shall be provided on each side of the private roadway. Private roads within mandated non-attainment areas for suspended particulate shall be paved. Private roads in all other areas shall provide an all-weather driving surface.
10. Median islands noses shall be no closer than 20 feet to the public road curb line.

TABLE 3.03
ACCESS STREET DESIGN

3.09 CONNECTIONS OF STATE HIGHWAYS AND NEW COUNTY ROADS

The Sponsor shall prepare and submit to the County Engineer a design proposal, acceptable to the Washington State Department of Transportation (W.S.D.O.T.), of the proposed state highway - county road intersection. W.S.D.O.T. approval of the proposed design must be received before the filing of the final plat. Improvements to the state highway are the responsibility of the Sponsor. The Sponsor may either construct the improvements or furnish to the County Engineer a bond to cover the cost of such improvements. The County Engineer and W.S.D.O.T. will decide the amount of the bond.

3.10 NOT USED

3.11 RAILROAD GRADE CROSSING

Standard signs and markings shall be installed at all railroad-road grade crossings. All railroad grade crossing signs and markings shall comply with the Manual of Uniform Traffic Control Devices and all other applicable State and Federal regulations.

The Sponsor shall install flashing light signals and gates, showing the approach or presence of trains, at those railroad-road crossings where studies by the County Engineer show the need of warning beyond that provided by standard signs and markings.

3.12 STANDARD ROAD AND TRAFFIC CONTROL SIGNING

The Sponsor shall be responsible for the installation of all permanent traffic control devices, such as, signs, striping and marking. He/she shall submit a signing and striping plan for approval. The plan shall show the types and locations of all traffic control devices, such as, signs, stripes, marking and delineators to be installed on public rights-of-way. Traffic control devices shall conform with the Manual on Uniform Traffic Control Devices. If the permanent traffic control devices are not installed in a timely manner the Sponsor shall be given a 30 day notice after which time the County will furnish and install all traffic control devices on the projects. The County will bill the Sponsor for the work based on the actual cost for labor, equipment rental, and materials. If the absence of critical safety devices such as stop signs is causing a present endangerment to the traveling public, the County will immediately furnish and install the devices and bill the Sponsor for the work.

3.13 NOT USED

3.14 TRAFFIC BARRIER

Traffic barriers shall be provided as specified in the Washington State Department of Highways Design Manual. A roadway cross section shall be submitted to assure proper barrier location. The barrier shall conform to Washington State Department of Transportation Standard Plans for guardrail and concrete barrier.

3.15 CLEAR ZONE

The term "clear zone" is used to designate the unobstructed area provided beyond the edge of the traveled way on a public road for the recovery of errant vehicles.

1. On shouldered roads, rigid objects shall be placed no closer to the traveled way than the clear zone distance derived by using Tables 3.15 and 3.15A. The methods described in the current edition of the Roadside Design Guide, AASHTO, may be used. Within the clear zone, all hazards shall be protected by traffic barrier. In lieu of barrier, hazards may be constructed flush with the surface.
2. On curbed roads with:
 - A. Sidewalk contiguous with curb - Rigid objects shall be placed behind the sidewalk.
 - B. Separated sidewalk - Rigid objects shall be no closer than two feet from the back of the curb.
 - C. No sidewalk - Rigid objects shall be no closer than two feet from the back of the curb.
 - D. Speed limit 40 mph or less - The clear zone distance is two feet behind the face of the curb.
 - E. Speed limit greater than 40 m.p.h. - The Sponsor's Engineer shall use the clear zone requirements for a shouldered road.

3.16 ROAD SURFACING REQUIREMENTS

All public roads in Spokane County shall be paved. A pavement surfacing design procedure must be performed for all public and private roads. Table 3.16 may be used in place of performing a pavement design for residential access roads. The design life for all roads shall be 20 years. The design procedure used must be approved by the County Engineer and must consider the following:

1. Traffic Loading - an estimate of the number and types of loadings the roadway will carry for the design life. This estimate of loading must be established by a procedure accepted by the County Engineer and be expressed in 18-Kip Equivalent Single Axle Loads (ESALs).
2. Subgrade Support - a representative value for the stiffness of the native material on which the road will be built. This value will be established by a procedure accepted by the County Engineer and be expressed as resilient modulus (M_R).

When determining M_R , soil sampling is to include:

- A. obtaining a sufficient number of soil samples which adequately represents the subgrade M_R and where significant changes in M_R occur;
 - B. constructing a soil log to a minimum of five foot depth below proposed subgrade and classify the soil per USC; and
 - C. recording the location of where the samples were obtained, normally by station and offset.
3. Analysis - a procedure for establishing the surfacing depth requirements for a given traffic loading and subgrade resilient modulus. This procedure must be approved by the County Engineer. The following procedure is pre-approved: *Guide for Design of Pavement Structures*, 1993, by the American Association of State Highway and Transportation Officials (AASHTO).

Structural pavement design and reporting is to be done in accordance with Technical Reference B.

Minimum Thickness:

Regardless of the thickness computed by the design procedure, the minimum thickness of road structural section shall be as follows:

Local Access:	2" Asphalt Concrete Pavement Class A or B 6" Crushed Surfacing Base Course
Arterial:	2" Asphalt Concrete Pavement Class A 2" Asphalt Concrete Pavement Class E 6" Crushed Surfacing Base Course

Rural roads with a traffic volume less than 200 A.D.T. may be paved by means of a light bituminous surface treatment (L.B.S.T.). The L.B.S.T. shall consist of no less than two applications of oil. The gravel thickness shall be designed according to good engineering practices considering the quality of the underlying soil. The design method shall be subject to approval by the County Engineer. In no case shall the gravel thickness be less than six inches. The Sponsor shall provide funding for an additional application of oil to be placed as a seal coat approximately one year after initial construction.

Design Speed	Design ADT	Fill Slopes			Cut Slopes		
		6:1 or flatter	5:1 to 4:1	3:1	3:1	4:1 to 5:1	6:1 or flatter
Posted Speed 35 mph or less		10	10	10	10	10	10
40 mph or less	Under 750	10	10	**	10	10	10
	1500-750	12	14	**	12	12	12
	1500-6000	14	16	**	14	14	14
	Over 6000	16	18	**	16	16	16
45 – 50 mph	Under 750	12	14	**	10	10	12
	1500-750	14	20	**	12	14	16
	1500-6000	18	26	**	14	16	18
	Over 6000	20	28	**	16	20	22
	Under 750	14	18	**	10	12	12
55 mph	1500-750	18	24	**	12	16	18
	1500-6000	22	30	**	16	18	22
	Over 6000	24	32*	**	18	20	24
60 mph	Under 750	18	24	**	12	14	16
	1500-750	24	32*	**	14	18	22
	1500-6000	30	40*	**	18	22	26
	Over 6000	32*	44*	**	22	26	28
60 – 70 mph	Under 750	20	26	**	12	16	16
	1500-750	26	36*	**	16	20	22
	1500-6000	21	42*	**	20	24	28
	Over 6000	34*	46*	**	24	30	30

* May be limited to 30 feet for practicality unless a site investigation indicates a probability of accidents. This will be determined by the County Engineer.

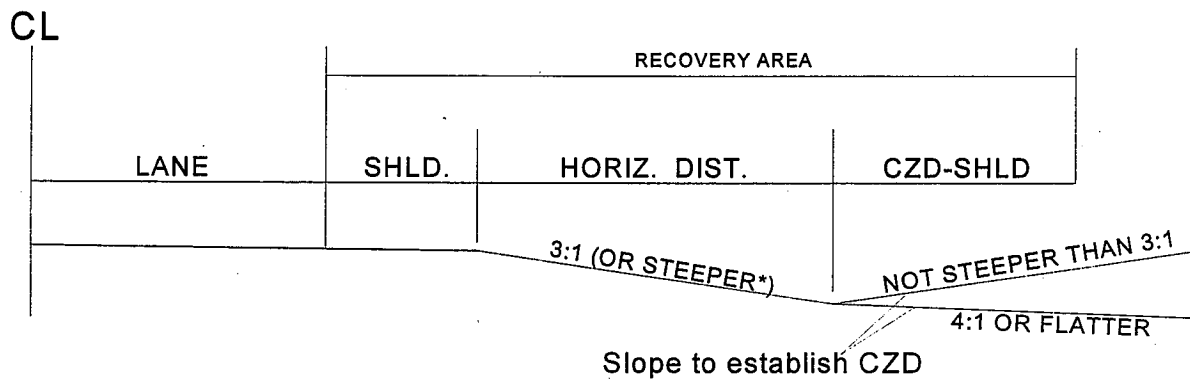
** Must be calculated using the Recovery Area Formula, Figure 3.15A

TABLE 3.15
CLEAR ZONE DISTANCES
SHOULDERED ROADS
(In feet from edge of driving lane)

K _{cZ} (Curve Correction Factor) ¹				
Degree of curve	DESIGN SPEED			
	40	45	50	55
2.0	1.08	1.10	1.12	1.15
2.5	1.10	1.12	1.15	1.19
3.0	1.11	1.05	1.18	1.23
3.5	1.13	1.17	1.22	1.26
4.0	1.15	1.19	1.25	1.30
4.5	1.17	1.22	1.28	1.34
5.0	1.19	1.24	1.31	1.37
6.0	1.23	1.29	1.36	1.45
7.0	1.26	1.34	1.42	1.52
8.0	1.30	1.38	1.48	
9.0	1.34	1.43	1.53	
10.0	1.37	1.47		
*Slopes Greater than 10	1.54			

¹Czc = L_c x K_{cZ}, where Cz_c = clear zone on outside of curvature, ft.

Recovery Area Formula



$$RA = SHLD + (3:1 \text{ slope dist.}) + (CZD - SHLD)$$

CZD = CLEAR ZONE DISTANCE: Use distance for a 3:1 cut slope (Table 3.15)

RA = RECOVERY AREA

* FOR SLOPES STEEPER THAN 3:1, THE EMBANKMENT HEIGHT MUST BE 10 FEET OR LESS

FIGURE 3.15A
HORIZONTAL CURVE ADJUSTMENT

	Residential Streets	
Soil Type Per Unified Soil Classification System (USC)	Private Roads	Local Access Streets
GW	2 inches/6 inches	2 inches/6 inches
GP	2 inches/6 inches	2 inches/7 inches
GM	2 inches/6 inches	2 inches/8 inches
GC	2 inches/7 inches	3 inches/6 inches
SW	2 inches/6 inches	2 inches/7 inches
SP	2 inches/6 inches	2 inches/8 inches
SM	2 inches/7 inches	3 inches/6 inches
SC	Pavement Design Needed	
ML	3 inches/6 inches	4 inches/6 inches
CL	Pavement Design Needed	
OL	4 inches/7 inches	5 inches/8 inches
MH, OH, Pt	Pavement Design Needed	

Notes:

- a) Values listed denote asphalt over crushed rock (minimum compacted thickness) {e.g. "2 inches/6 inches" denotes 2 inches of asphalt pavement over 6 inches of crushed rock}
- b) Values were calculated using the flexible pavement design method by AASHTO, 1993; and assuming traffic loads for residential-type neighborhoods. A 20-yr-design life was used.
- c) A minimum of 2 inches/6 inches structural pavement section was used in the table.
- d) When multiple soil classifications are encountered below the planned road subgrade, if the higher-strength soil is at least 2 ft. in depth and is above the lower-strength soil, then the structural pavement section applicable to the higher strength soil can be used only for soil types GW through SM.
- e) For soil types GW through SM, the upper two feet of roadway subgrade shall be compacted to 95 percent of the maximum dry density, based on the AASHTO T-180 test procedure.
- f) To use this table the Engineer shall acquire soil samples at the project site and classify the soils encountered, in accordance with sampling requirements listed in Technical Reference B.

**STRUCTURAL ROAD SECTIONS
FOR RESIDENTIAL STREETS
PAVEMENT DESIGN ALTERNATE
TABLE 3.16**

3.17 CUL-DE-SACS

Dead-end public roads shall have a cul-de-sac constructed at the end. Cul-de-sacs are shown on the Standard Plan sheet entitled "Cul-de-Sac Public Roads". In areas not served by fire hydrants, cul-de-sacs shall have a radius of 50 feet. On paved rural roads, a paved cul-de-sac with a 45-foot radius and a 5-foot gravel shoulder may be used.

At the end of private roads, the developer shall construct an area for vehicles to turn around. This turn-around area shall be constructed as shown on the Standard Plan sheet entitled "Cul-de-Sac Private Roads".

3.18 CURBS, SIDEWALKS, AND PATHWAYS

1. Requirement for all public roads within urban, commercial, and industrial land use zones:

- A. Concrete curb, gutter, and sidewalk shall be constructed on both sides of the road. Sidewalk will not be required on cul-de-sac roads less than 400 feet in length measured from the centerline of the intersecting street to the radius point of the cul-de-sac.

This requirement applies to all new roads, roads to be reconstructed, or where there is a change of use of a commercial property.

The County Engineer may require sidewalk and /or curb and gutter on one or both sides of the road in rural areas where pedestrian traffic can be expected to occur, including but not limited to arterial roads, commercial uses, industrial uses, schools, parks, churches or shopping areas.

- B. If roads abutting commercial property have concrete curb and gutter and/or sidewalks for which the following actions are requested:

1. A building permit for a new building, or
2. Change in use of an existing building.

The owner shall replace broken or off-grade curb and gutter and/or sidewalks. The project Sponsor shall remove or replace all driveways not conforming to this chapter as directed by the County Engineer.

- C. Where new concrete curb is to be placed to form a wider road than the existing paved road, the area between the existing edge of the pavement and the new curb shall be paved as directed by the County Engineer. Where the existing curb is removed and replaced at a new grade, the Sponsor shall pave the road next to the gutter to match the new grade of the gutter.

D. Standard: See Standard Plans entitled "Curbs and Gutters" and "Urban Driveways - Separated Sidewalks".

2. On shouldered public roads, pedestrian walkways may be incorporated into the shoulder of the road. This is done by constructing shoulders wider than those shown on Tables 3.01, 3.02, and 3.03. The Sponsor's Engineer shall use the structural section of the shoulder for the walkway area.

3.19 NOT USED

3.20 CURB RAMPS

The Sponsor shall construct ramps to provide passage of disabled persons. The ramp shall be constructed in curb and sidewalk at all corners of intersections. Ramps shall be constructed at other crosswalk locations. Ramps shall be constructed as shown on the Standard Plan entitled "Curb Ramp".

3.21 NOT USED

3.22 PRIVATE ROADS

A private road is a privately owned vehicular access route serving more than three lots, parcels or tracts which do not have frontage on a public road right of way.

Private roads with frontage on a public road shall be paved and shall be maintained by the Sponsor. Private roads with other access shall be paved by the Sponsor. The travel way of a private road shall be designated as a fire lane under the Uniform Fire Code as amended. Spokane County will not perform an in-depth review of private road plans.

Private roads may be permitted when:

1. The roads are within the jurisdiction of the Spokane County Subdivision Ordinance.
 2. A title block is provided in accordance with the provisions for the maintenance of the private road and associated easements for the development, and
- A. A ten (10) foot easement shall be provided for on each side of the roadway for roadway maintenance and utilities, and

vehicle use, and

NOT APPROVED

The private roads will not obstruct public road circulation.

Private road design plans, drainage studies, drainage plans and appropriate calculations shall be submitted by the Sponsor to the County Engineer prior to construction of the road. All submittals shall bear a certification by the Sponsor's Design Engineer that they were prepared in accordance with the Spokane County Design Standards and all other applicable laws and regulations. Prior to private road construction, the Sponsor must acquire a permit for a private road from the County Engineer. The permit shall include a drainage plan that impacts the public road. The permit shall be in accordance with the procedures shall be in accordance with Section 5.01.

NOT APPROVED

The Sponsor shall submit record drawings of private road construction to the County Engineer. All record drawing submittals shall bear certification by the Sponsor's Construction Engineer that construction was performed in conformance with these standards, the provisions for Section 9.10 and the Guidelines for Stormwater Management.

Spokane County does not furnish, install, or maintain signs for private roads including stop signs. Street name signs for private roads may be installed by the owner. The owner may install their own signs for private roads. The County Engineer must have approval from the County Engineer when installing signs at intersections with public roads. Prior to installing signs at the private road intersecting with a public road, an approval shall be obtained from the County Engineer.

NOT APPROVED

3.23 PRIVATE ALLEYS

Privately owned alleys may be constructed to provide secondary access to urban, residential lots. An alley must be sixteen feet wide, paved, and must be located within a minimum twenty-six foot wide easement or private right-of-way. The alley shall connect to a public or private road at each end. The intersection of an alley with a public road shall conform to the Standard Drawing entitled "Cement Concrete Approaches". Prior to final plat approval, the developer must provide an agreement for the maintenance of private alleys.

Alley design shall conform to the design standards for a private road shown on Table 3.03. Private alleys are designated fire lanes as described in the current edition of the Uniform Fire Code.

3.24 DRIVEWAY APPROACHES

1. GENERAL

- A. Private driveways provide primary vehicular access from a roadway to up to three lots. Private driveways shall comply with Section 3.0-5.050 of Title 3 of the Spokane County Code, as amended.
- B. Every driveway approach must provide access to an off road parking area located on private property. The driveway shall be of sufficient length so a vehicle in the driveway does not project into the road right of way, sidewalk, or pathway.
- C. Public or private driveways in industrial, commercial, multiple family, church, or any like use shall be constructed to allow vehicles to exit without backing out onto an arterial road.
- D. Driveway approaches shall be constructed to avoid interference with existing drainage inlets, culverts, road lighting standards, utility poles, traffic regulating devices, fire hydrants or other public facilities. The applicant shall bear the cost of relocating any such public facility. The agency holding authority for the particular structure shall decide how the facility will be relocated.
- E. The total width of all driveway approaches on a road for any ownership shall not exceed 50% of the frontage of that ownership along the road and shall not be more than two in number except as allowed under Section 3.24 1.G.1. Refer to the Standard Plan entitled "Cement Concrete Approaches" for approach dimensions.
- F. The owner of a driveway approach that has been abandoned, or for any reason has become unnecessary, shall replace it with a standard curb and sidewalk that is constructed according to the Standard Specifications and Standard Plans. This construction work shall take place in case of actions listed under 3.24 1.G.1. through 3.
- G. In single ownerships, if the total width of existing driveway approaches on a road is over 50% of the frontage of the ownership on that road, or any driveway approaches are wider than 40 feet, such existing driveways shall be made to conform to this chapter's provisions in the following events:
 - 1. Any alteration, widening, relocation, or repair of existing driveways in the ownership.
 - 2. Any construction of additional approaches in the ownership.

3. Where a single ownership is developed into more than one parcel, requirements for driveways may apply to each separate parcel rather than to the entire ownership, if:
 - a. Each parcel shall meet the requirements of off road parking and/or loading as required by the Zoning Ordinance.
 - b. The safety of pedestrians or vehicular traffic is not endangered,
 - c. There is necessity for separate access to the road.
4. In instances where the County Engineer deems, due to either existing or anticipated conditions, that the requirements of the Spokane County Standards for Road and Sewer Construction, will not provide the proper control of access or egress for traffic or safely provide for the traffic using the street, he/she may make additional requirements to insure public safety.

2. NON-RESIDENTIAL DRIVEWAY APPROACHES

- A. Where existing curb and/or sidewalk is not continuous along the road frontages of ownerships, the Project Sponsor shall construct curb and gutter and/or sidewalk to form a continuous curb and/or sidewalk. The Sponsor shall install any necessary storm drainage improvements directed by the County Engineer. Where a single ownership is developed into more than one parcel, requirements for curbs and gutter and sidewalks may apply to each separate parcel instead of the entire ownership.
- B. If construction of driveways, curbs and gutters is waived, driveway approaches shall be properly delineated by the permit holder by wooden posts or other means as directed by the County Engineer. The driveway approaches shall be of asphalt concrete pavement from the existing roadway surface to the property line.
- C. Driveway approaches shall not restrict or impound drainage flow in the road gutter line. For shouldered roads with ditches, storm drainage shall be passed under a driveway by a culvert pipe. A suitable warning marker shall be placed at each end of the culvert. The size of the culvert shall be as specified by the County Engineer. A diameter of twelve inches (12") shall be the minimum size culvert allowed.

2. DRIVEWAY APPROACH DESIGN

- A. Driveways shall be constructed to define the access and egress openings in accordance with the Spokane County Standards for Road and Sewer Construction and Standard Plan sheets entitled "Cement Concrete Approaches" and "Rural Road Approaches".
- B. Driveway approach grades within right of way shall not exceed 8% (a rise or descent of 8 feet in 100 feet) in the urban area, or 2% (a rate of rise or descent of 2 feet in 100 feet) in rural areas. Driveway grades shall not exceed ten percent within ten feet of a county road right-of-way.

Drainage from private driveways that connect to a public graveled road shall be controlled to prevent runoff water from entering onto the public roadway.

- C. No driveway approach in the curb line shall be constructed, reconstructed or altered to be within five feet of a street crosswalk or on the curb arc between two intersection curb lines at a street intersection.
- D. The spacing between driveway approaches in the curb line of ownerships or leaseholds shall not be less than ten feet for commercial uses nor less than fifteen feet for industrial uses measured parallel with the frontage.
- E. No driveway approach shall be located closer than seven and one-half feet from an interior lot or property line.
- F. Driveway approaches in commercial zones may not be located closer than thirty feet from the point of curvature of a curb return. Driveways in residential zones may not be located closer than five feet from the point of curvature of a curb return.

4.00 3-R DESIGN STANDARDS

1. GENERAL

A publicly-funded road project becomes 3-R when the proposed improvement consists of resurfacing, restoration, and rehabilitation of the existing pavement. The purpose of these projects is to preserve and extend the service life of the roadway. They also result in enhancing the safety of the traveling public.

Projects, classified as 3-R, involve work on an existing roadway surface and/or subsurface. Their purpose includes extending the service life, providing additional pavement strength, paving existing gravel roads, increasing skid resistance, improving the ride of the roadway, and enhancing it's safety. A project may be considered 3-R if no more than 50 percent of the project length involves vertical or horizontal alignment changes. To be considered 3-R, the road cannot be widened more than one traffic lane. All projects that are not qualified as a 3-R project must meet design standards for new construction.

Normally, project sponsors make 3-R improvements within the existing right of way. The Sponsor should consider acquiring right of way and/or easements, if practical.

Survey monuments shall be perpetuated in accordance with the "Land Survey Standards" sections of the manual.

2. DESIGN STANDARDS:

It is desirable that 3-R projects be designed to meet the standards for new construction. However, if for reasons such as environmental concerns, social impact, or cost, it is inadvisable or impossible to meet new construction standards, the Project Sponsor should make a careful analysis of the alternatives. The analysis should consider adjacent roadway sections, future improvements, and existing conditions. If meeting the new construction standards is unreasonable, improvements in roadway widths should still be considered.

- A. Design Speed - The County Engineer will set the design speed for 3-R projects.
- B. Super elevation - To provide for the same degree of safety and comfort on 3-R projects as on any other, super elevation, including transitions, should be provided on projects with a design speed greater than 35 mph.
- C. Roadway Width - The minimum roadway surfaced width (W) for 3-R projects is 24 feet for a shouldered road and 32 feet on a curbed road.

- D. Ditches - Fill slopes and slope ditches shall not be steeper than 3:1. Flatter slopes are desirable.
- E. Alignment - Alignment improvements should be undertaken where the number of accidents is high, and where previously installed warning signs, markings, or other devices have not proven effective. If existing horizontal and vertical alignments are to be retained, a careful analysis should be undertaken to provide adequate signing and marking.
- F. Clear Zone - For safety, it is desirable to provide a roadside recovery area that is as wide as practical. The designer must give particular attention to the clear zone at identified high roadside accident locations. An adequate clear zone at horizontal curves at the end of a downgrade, should be provided if practicable. The clear zone distance can be determined using Figure 3.16. The Sponsor should relocate utility poles, luminaries, and sign supports or make to break away, if necessary, to provide for safety.
- G. Bridge - A bridge to be replaced on a 3-R project shall be designed to new construction standards.
- H. Curb ramps - Curb ramps shall be provided on 3-R projects where curbs and sidewalks are provided.

5.00 PROJECT APPLICATION AND CERTIFICATIONS

5.01 APPLICATION PROCEDURE

Submittal requirements and procedures shall be as prescribed by the County Engineer. The application and certification procedure for public and private road construction shall be as prescribed by the County Engineer and shall generally include, in sequence, the following items:

1. Conduct a Pre-Design Meeting with the County Engineer to reach concurrence on the design parameters and drainage concept,
2. If needed, conduct a joint site visit by the Sponsor's Design Engineer and the County Engineer,
3. Submit and receive approval of any design deviations,
4. Submittal, certification and approval of the plans and calculations by the Sponsor's Design Engineer,
5. Conduct a pre-submittal meeting to determine that all the information necessary to evaluate the submittal is present, until the submittal meets basic requirements,
6. Cursory check of the submittal and acceptance of the plans and calculations by the County Engineer,
7. Construction and inspection by the Sponsor's Construction Engineer,
8. Final inspection by the Sponsor's Construction Engineer and the County Engineer,
9. Submittal of certification and record drawings by the Sponsor's Construction Engineer.

The Sponsor's Engineer shall schedule a pre-design meeting with the County Engineer. The purpose of the Pre-Design meeting is to identify the major design parameters prior to design, review the general design concepts proposed by the Sponsor's Engineer, and reach concurrence on design concepts and design parameters. As part of the Pre-Design meeting, applicants shall receive a checklist from the County Engineer's Office, which demonstrates the items required by Spokane County Standards minimally necessary for plan review. The meeting minutes and the checklist shall be signed by the Sponsor (or his Engineer), as well as by a representative of the Spokane County Engineer. Additional pre-design meetings may be needed as determined by the County Engineer. A joint site visit may be required to reach agreement on drainage basin limits prior to design concurrence.

Proposed design deviations shall be applied for and approved prior to submittal of final road and drainage plans. The design deviation application shall be submitted in a format prescribed by the County Engineer.

The Sponsor's Engineer and a representative of the Development Services Section of the Spokane County Division of Engineering must conduct a pre-submittal meeting before the County Engineer accepts the design documents for review. The submittal will be checked along with the pre-submittal checklist to ensure that the basic information necessary to review the submittal for compliance with the project requirements is provided.

Submittals that do not contain the basic information necessary to review the submittal for compliance with the project requirements will be returned to the submitter for revision. When the design documents are revised, additional pre-submittal meetings are required until the Spokane County Division of Engineering accepts the submittal for review. The pre-submittal checklist, which includes the minimum requirements checklist from the Pre-Design meeting, will be reviewed at these meetings. If the design submittal is still incomplete, the meeting minutes and any revised checklist will be signed by the Sponsor or his Engineer, as well as by a representative of the Spokane County Engineer.

If the design submittal contains all the basic information necessary to review the submittal for compliance with the project requirements, the Division of Engineering will accept the submittal for review.

The Sponsor, the County Engineer, and the County Utilities Director shall execute a Project Agreement prior to road, drainage, or sewer plan approval and/or acceptance by Spokane County for the project. The Project Agreement shall be in a form acceptable to the Spokane County Prosecuting Attorney. A sample agreement is provided in these Standards as Technical Reference C.

The Sponsor shall obtain acceptance of the plans and calculations from the County Engineer before the start of construction and before recording the plat. The County Engineer may require that a Temporary Erosion/Sedimentation Control Plan be implemented.

The Sponsor's Surveyor shall comply with procedures for perpetuation of survey monuments in accordance with the "Land Survey Standards" section of this manual.

The County Engineer relies upon the certification and approval of the road and drainage plans and calculations by the Sponsor's Engineer for approval of the plat. The County Engineer's acceptance of the plans shall not relieve the Sponsor or the Sponsor's Design Engineer from any liability related to portions of the design which are not in conformance with these Standards or do not follow good engineering practice.

The plans, basin maps and calculations shall be signed, sealed, and dated by the Sponsor's Design Engineer. The cover sheet of the plan set and the cover sheet of all the calculations shall bear the certification, which reads:

"The design improvements shown in this set of plans and calculations conform to the applicable editions of the Spokane County Standards for Road and Sewer Construction and the Spokane County Guidelines for Storm Water Management. The Spokane County Engineer has approved all design deviations. I approve these plans for construction."

The Sponsor shall reimburse the County for all costs incurred for pre-submittal meetings, submittal reviews, site-visits, and any other work associated with a developer's project. Costs shall be assessed as outlined on the latest fee schedule adopted by the Board of County Commissioners, and in accordance with the Fee Agreement signed by the Sponsor.

For each construction phase, the Project Sponsor's Engineer shall provide construction inspection, which complies with the requirements of Section 9.04, and upon completing the construction inspection shall provide "Record Drawing" which comply with the requirements of Section 9.10 of these Standards.

5.02 GENERAL FORMATTING

The general format, number of copies, and application processes shall be as follows:

1. PRIVATE DESIGN:

Original sheets shall be good quality reproducible, ink on mylar. The designer may submit the original sheets on vellum paper if computer-drawing files are also submitted. Computer files shall be in AutoCAD .DWG or .DXF format.

- A. All plan sheets shall be in size 24 inches x 36 inches.
- B. First and subsequent applications shall contain two sets of prints of road plans, typical cross sections, profiles, and detail sheets. A drainage plan and drainage calculation shall also be submitted as required in Section 2 of the Drainage Guidelines.
A print of the proposed final plat map shall be submitted before plan approval where street layout and lot numbering have been changed from the preliminary plat map. Upon the return of plans for correction, the Sponsor's Engineer shall show any changes on a revised print in color. The engineer shall show the date of these changes. The colors of red and yellow are reserved for County comments.

- C. The first application shall contain a letter signed and sealed by the Sponsor's Surveyor that a thorough search has been made for survey monuments. He/she shall indicate that all found monuments are properly referenced in accordance with current applicable state laws. A copy of references shall be filed in the County Engineer's Office.
- D. The final application shall contain the original and two sets of blue line prints of corrected road plans, profiles, typical cross sections, detail sheets, and drainage plans and calculations. If the Sponsor or his engineer desires the County to return an accepted set of reproducible plans, the Sponsor should also submit a set of sepia plans. Upon the County Engineer's acceptance of the final application, the County Engineer will retain the original, using it to make copies for public inspection and distribution as required. The acceptance of construction plans shall expire two years from the acceptance date shown on the plans. It may be extended for an additional two years at the option of the County Engineer. Before the extension of acceptance, the Sponsor's Engineer shall revise the plans to reflect current standards.

2. COUNTY DESIGN:

Procedures for county design shall be as required for coordination and for approval by funding authorities. Survey monuments shall be perpetuated in accordance with the "Land Survey Standards" sections of this manual.

5.03 DRAFTING STANDARDS

- 1. Fonts- Lettering shall be legible to be easily read and understood by the reviewer. The lettering shall be of sufficient size and scale to produce clear, readable images when scanned digitally by an optical scanner. Submitted plans not meeting these criteria will be returned to the Sponsor for correction.
- 2. Lines and Symbols- Standard drafting lines and symbols are shown on the Standard Plans entitled Spokane City/County Drafting Standards. Both the City of Spokane and Spokane County have adopted these conventions. All drawings submitted for review shall use these Standards. Symbols and line types for plan features not available in the Standards shall be described in a legend on each plan sheet. Electronic copies of the Standard lines and symbols in AutoCAD Release 12, 13, and 14 DOS/Windows format are available by downloading from the Division's Internet site.

5.04 PLAN

Plans may be comprised of more than one set of project drawings each depicting separate items of work. Plans shall include the following:

1. The first sheet of the plans shall include a project title, vicinity map, an index of plan sheets, the engineer's certification statement, and signature block containing approval signatures of both the Project Sponsor and his Engineer.
2. Road alignments with 100' stationing, reading from left to right, and stationing at points of curve, tangent, and intersections, with appropriate ties to existing road surveys and stationing, section corners, quarter corners, and the horizontal control net established by the County Engineer. Stations shall increase from west to east and from south to north.
3. Section, township, and range.
4. Bearings on the road centerline, keyed to an associated plat map.
5. Curve data including radius, delta, arc length, and semi-tangent length, on all road centerlines and curb returns.
6. Right of way lines, width for proposed road, intersecting roads, and existing road improvements with dimensions.
7. All topographic features within right of way limits or future right of way limits and sufficient area beyond to resolve questions of setback, slope, drainage, access onto abutting property, and road continuations.
8. All existing utilities.
9. All proposed water and sewer utilities that will be designed and constructed.
10. Identification of all roads and adjoining subdivisions.
11. A Traffic Control Signing Plan. (See Section 3.12)
12. Existing and proposed drainage features, showing direction of flow, size, and kind of each drainage channel, pipe, and structure and other requirements as specified in the Guidelines for Storm water Management.
13. Minimum Scale: 1" = 50'. However, 1" = 100' shall be optional for development of lots one acre or larger. Details for clarification may be shown on a convenient scale. A scale of 1" = 20' may be required for urban arterial streets where detail is sufficiently dense to cause a "cluttered" drawing at a smaller scale.
14. A north arrow.

15. As a minimum, one new control monument shall be set at each end of a new road and intermediate monuments as required under 6.02.
16. Project beginning and ending designation with stations.
17. A title block to include:
 - A. The project name
 - B. County Project Number
 - C. Sheet number
 - D. Road names
 - E. Road limits
18. All found and referenced survey monuments.
19. Section and lot lines
20. Standard symbols as shown on Standard Plan entitled Symbols.
21. Beginning, middle, and ending elevations of curb returns.
22. Other data necessary for the specific project.

5.05 NOT USED

5.06 PROFILE ELEMENTS

Profile elements shall include the following:

1. Original ground line at 100' stations and at significant ground breaks and topographic features based on field measurement accurate within 0.1' on unpaved surface and 0.01' on paved surface.
2. A final road and storm drain profile. The stationing shall be the same as the horizontal plan, reading from left to right. It shall include stationing of points of curve, tangent, length, and point of intersection of vertical curves, with elevations to 0.01'.
3. Profiles for curbed roads shall show the tops of both curbs and the centerline clearly labeled. Profiles for shouldered roads shall show the centerline only.
4. On a grid of numbered lines, a continuous profile shall be shown for both existing and proposed improvements.

5. Grade and vertical curve data, all profiles.
6. The datum used and all benchmarks, which must refer to established control when available. (See Section 6.02)

5.07 NOT USED

5.08 TYPICAL CROSS SECTION

Typical cross sections shall include the following:

1. The dimensions of traffic lanes, shoulders, gutters, sidewalks, swales, depths, planting strips, easements, and right of way, etc.
2. The cross slope of all elements, such as, the pavement, ditches, swales, gutters, sidewalks, planting trips, etc.
3. Type of curb.
4. Dimensions of structural section material layers.
5. Retaining walls where required.
6. A separate full width roadway typical section for each street or portion of the street that differs significantly. Station limits shall be shown.
7. All other data necessary for a specific project.

5.09 NOT USED

5.10 DRAINAGE PLAN

A drainage plan is required by Spokane County Guidelines for Storm Water Management. A private developer may submit the drainage plan integrally with the road plan and profile, if space permits. Otherwise, he/she shall submit it on separate plan and data sheets.

6.00 LAND SURVEY STANDARDS

6.01 REGULATIONS

1. Surveys shall conform to all applicable state and local regulations.
2. Prior to any construction within County rights-of-way, a surveyor shall conduct a thorough search for all survey monuments. Any found monuments shall be referenced in accordance with current applicable state laws. A copy of the references shall be filed in the office of the County Engineer.

6.02 MONUMENTATION

1. The responsible surveyor shall set permanent monuments with his/her registration number as follows:
 - A. For placing new or replacement of section corners, quarter corners, closing corners, witness corners, and meander points that have been disturbed or destroyed, the minimum acceptable monument is a 3/4 inch inside diameter iron pipe or a #4 steel reinforcing rod, 24 inches in length. The monument shall be marked in conformance with state laws and regulations. Any of these corners in paved roads shall be covered by a Spokane County standard cast iron monument case. Monument cases are shown on the Spokane County Standard Plan sheet entitled "Monument Case and Cover".
 - B. For placing new or replacement of disturbed road centerline angle points, curve points, and road intersection points, the minimum acceptable monument is a 1/2 inch inside diameter iron pipe or a #4 steel reinforcing rod, 18 inches in length. On principal arterials, monument cases and covers shall be set to protect the monuments. All monuments in other paved roads shall be set flush with the road surface.
 - C. For placing new or replacement of all permanent monuments not covered above, the minimum acceptable monument is a 1/2 inch inside diameter iron pipe or a #4 steel reinforcing rod, 18 inches in length.
 - D. If it is impossible to set the above monuments, the County Engineer may approve an alternative monument.
2. Each monument set according to 6.02 1A through 6.02 1D shall have at least three reference points. The reference points may consist of, in order of preference, cross on curbs, bearing trees, property corners or alternate approved by County Engineer.

6.03 HORIZONTAL CONTROL NET

A horizontal control net established by the Spokane County Engineer shall be the mapping base for all surveys lying within its boundaries. All surveys done within this net shall conform to the degree of accuracy required under applicable state laws with adequate supplemental information as required by the County Engineer to ensure accuracy.

6.04 TEMPORARY BENCH MARK

The surveyor shall provide a temporary benchmark along the roadway every one thousand feet. These temporary bench marks shall be based on a datum plane approved by the County Engineer. The surveyor shall submit field notes or sealed statement insuring work according to third order accuracy. Please refer to Washington State Department of Transportation Standards.

7.00 BRIDGES AND OTHER STRUCTURES

7.01 PRINCIPAL REFERENCE FOR BRIDGES

Except as specified below, Spokane County bridges on public roads shall be designed and constructed according to the latest edition of "Standard Specifications for Highway Bridges", adopted by American Association of State Highway and Transportation Officials (AASHTO) including all interim addenda. Plans and structural computations shall be submitted for approval of the County Engineer before construction begins. All new bridges shall be designed to carry an AASHTO HS 25-44 live load or greater.

1. The bridge roadway shall comprise the full width of the road being served. This includes the traveled way, the curb, the sidewalk, the walkway, bike lanes, equestrian lanes, and/or shoulders. Requirements of utilities shall be duly considered.
2. Where typical speed is 35 MPH or higher and significant pedestrian, bike and/or horseback traffic can be expected. The Engineer may require that the lane for the secondary modes be separated from motor vehicle traffic by use of a bridge traffic barrier and further protected by a pedestrian rail at the outer edge.
3. The width of a bridge shall be the greater of the design roadway width or the existing roadway width but not narrower than 28 feet.
4. Traffic and pedestrian railings or combination traffic-pedestrian railings shall meet AASHTO specifications.
5. Overhead vertical clearances on bridges serving arterial roads shall be no less than 16.5'. Other roads may have a minimum vertical clearance of 15 feet.

7.02 NOT USED

7.03 OTHER BRIDGE DESIGN CRITERIA

Criteria under other recognized road and bridge classifications, such as those of the Federal-Aid Rural Area Design Standards, may be applied under conditions deemed appropriate by the Engineer.

7.04 RETAINING WALLS AND OTHER STRUCTURES

Analysis and design of retaining walls and other structures constructed within County right-of-way and/or maintained by Spokane County shall conform to the requirements of the current edition of the "Standard Specifications for Highway Bridges", AASHTO. Plans and structural computations shall be submitted for approval of the County Engineer before construction begins.

Mortarless concrete block retaining walls shall be designed and constructed in accordance with the National Concrete Masonry Association Technical Report 127 (NCMA TR127).

8.00 UTILITIES

8.01 FRANCHISING POLICY

Utilities to be located within the County road right-of-way shall be constructed according to current franchise and permit procedure and according to these standards. In their use of the right of way, utilities shall be given consideration only after the requirements of the road are met. These requirements are to provide safe, efficient and convenient passage for motor vehicles, pedestrians, and other traffic. Aesthetics shall be a consideration. As a matter of policy, Spokane County strongly encourages utility companies to place electric lines underground, particularly in urban development.

8.02 STANDARD UTILITIES LOCATIONS

Utilities within the right of way on new roads shall be located as shown on Standard Plan entitled Utility Locations. The locations shown on the standard plan shall be used on existing roadways where topography, utilities, or storm drains do not conflict. Where existing utilities or storm drains are in place, new utilities shall conform to these Standards as nearly as practical and yet be compatible with the existing installations.

Exceptions may be approved when necessary to meet the special requirement of overhead utilities when right of way space is limited in planned unit developments, manufactured home parks, multifamily developments and commercial developments.

1. Notwithstanding other provisions, underground systems shall be placed at least five feet away from road centerline and where they will not otherwise disturb existing survey monuments.
2. Underground utilities that can use a joint trench shall have the option of occupying any other utility company's standard location if that company is a participant in the joint trench installation.
3. Any utility company may use another utility company's standard location provided they obtain approval from that company. A copy of the approval shall be furnished to the County Engineer.

8.03 NOT USED

8.04 SCHEDULING OF UTILITIES INSTALLATION, RELOCATION AND INSPECTION

When possible, utilities, including service crossings, shall be installed or relocated before the start of road construction. If planned road cuts and fills are large or if the location of road elements cannot be clearly shown in advance, the utility company will coordinate the relocation of utilities with the contractor before construction. Otherwise, such utilities and connections shall be installed or relocated after the subgrade has been completed but before surfacing has been placed.

As a matter of policy, Spokane County discourages utility trenching or transverse cuts in County roads. Cutting or trenching roads that have been reconstructed within the previous five years will not be permitted unless it can be shown that alternatives are not feasible. Possible alternatives are boring, jacking, relocating outside the paved area, or installing the utility just before reconstruction or overlay of the road.

In instances where trenching or cutting is permitted, pavement patching shall include:

1. cutting the existing pavement
2. removal of existing pavement
3. preparation and compaction of subgrade
4. placement and compaction of aggregate base material
5. application of tack coat and construction of the asphaltic concrete pavement "patch"

This work shall conform to the applicable sections of the Washington State Department of Transportation Standard Specifications. On arterial roads, the utility company may be required to backfill the trench in paved roads with Portland cement concrete to within 0.10 feet of finish grade. This requirement may be applied on all paved roads during cool or inclement weather.

Monumentation: The contractor, according to the "Land Survey Standards" section of these standards, shall protect existing survey monumentation.

9.00 PERMITS AND INSPECTION

9.01 APPLICATION

Any party desiring to construct on county right-of-way, including connecting a road or driveway to a county road, shall first obtain a permit by filing a written application with the County Engineer. Such application shall be made on a Spokane County form provided for that purpose, and shall include:

1. The name and address of the applicant.
2. The name and address of the owner of the property abutting the road and where the work is proposed.
3. The exact location of the proposed work, giving the road address or legal description of the property involved.
4. A detailed plan accurately showing:
 - A. The dimensions of the abutting property.
 - B. The dimensions and locations of existing or proposed driveways.
 - C. Utility poles.
 - D. Hydrants.
 - E. Road light standards.
 - F. Trees within the limits of the frontage of said property.
 - G. Other pertinent features.
5. The plan shall also show the location of buildings, loading platforms and off-road parking facilities being served or to be served by such driveways.
6. The County Engineer may require, at his discretion, the filing of any other information when he feels such information is necessary to properly enforce the provisions of this section.
7. The County Engineer will not approve a plan nor issue a permit where it appears that the proposed work conflicts with the provision of this standard or any other ordinance or resolution of Spokane County; nor shall issuance of a permit be construed as a waiver of the Zoning Ordinance or other ordinance requirements concerning the plan.

9.02 BASIS FOR CONTROL OF THE WORK

Work shall be done to the satisfaction of the County Engineer and according to approved plans (Section 5.00). This includes work done in the existing, proposed, or future public right of way. It applies to work by a private project sponsor, by county forces, or by a county contractor. It is emphasized that no work may be started until such plans are approved. The County Engineer shall approve any revision to the plans before the proposed revision is constructed.

The County Engineer shall have authority to enforce the Standards just as other referenced or pertinent specifications. He/she will appoint engineers, assistants, and inspectors as necessary to control and inspect the work and they will exercise such authority as the County Engineer may delegate.

1. PERMIT REQUIRED

No person, firm or corporation shall commence work or permit any other person, firm, or corporation to commence work on the construction, alteration, repair, removal, cutting and/or paving of any road, alley or other public place in Spokane County without first obtaining a written permit and approved plans from the County Engineer.

The Sponsor shall be responsible for the County costs incurred for inspection. The costs shall be assessed as outlined on the latest fee schedule adopted pursuant to Board of County Commissioner's Resolution No. 80-1592 or as the same may be amended.

2. TRAFFIC CONTROL DURING CONSTRUCTION

Before commencing work on the project, the Sponsor shall prepare and submit a signing plan to the County Engineer for review and approval. As work progresses, the Sponsor shall revise the signing plan to conform to changing conditions. The Sponsor shall provide flagmen to control traffic during the project. He/she shall also provide the flagman's protective apparel, barricades, lights, standard signs, cones, and other devices for the protection of the public and maintenance of traffic through the project.

9.03 NOT USED

9.04 ROAD CONSTRUCTION INSPECTIONS

The Sponsor's Engineer or a designated representative shall perform inspections on all road construction generated by a land use action.

The County Engineer may elect to perform the construction inspection on public road improvements generated by a building permit.

9.05 NOT USED

9.06 CONSTRUCTION INSPECTION NOTIFICATIONS AND RECORDS

The Sponsor's Engineer shall be responsible to ensure that construction of roads and appurtenances is according to county accepted project plans, County General Provisions, the Standard Specifications, and applicable portions of the WSDOT Construction Manual. County forces may make random visits to public road construction sites, as deemed necessary. Random visits are to ensure a quality construction inspection process and do not express or imply approval or disapproval of the contractor's work. The County Engineer shall have access to all construction inspection records and reports.

The Sponsor's Engineer shall submit all construction change orders that propose changes to the accepted plans or specifications to the County Engineer for his review and approval. The County Engineer will use a fast-track system for change order approvals when the progress of construction makes it infeasible to wait for formal approval.

If, in the opinion of the County Engineer, the Sponsor's Engineer fails to satisfactorily perform the proper inspection, testing, and record-keeping duties, the County may take action as provided for in Section 1.10 "Compliance Review".

Prior to scheduling a final inspection with Spokane County, the Sponsor's Engineer shall:

1. Submit all construction records to the County Engineer. This shall include but not be limited to, Daily Inspector's Reports, correspondence, manufacturer's certifications, material test reports, and Record Drawings as required in Section 9.10.
2. Ensure that all previously identified project deficiencies have been corrected.

The Sponsor's Engineer shall schedule a final inspection meeting between the Sponsor's Engineer and the County Engineer prior to establishment of the roads by Spokane County. Deficiencies found shall be corrected by the Sponsor prior to road acceptance. At the time of establishment of the roads by the Board of County Commissioners, the County will assume responsibility for road maintenance and operation. The County will then release the Sponsor's Engineer from responsibility with regard to construction inspection.

9.07- 9.08 NOT USED

9.09 COUNTY FORCES AND COUNTY CONTRACT ROAD INSPECTION

Representatives of the County Engineer will inspect road construction done by county forces or by county contract.

9.10 RECORD DRAWINGS

During construction, the Sponsor's Surveyor and/or Construction Engineer shall record any changes to the plans.

All substantive differences shall be noted on the approved final road and drainage plans and shall be labeled Record Drawings. The following statement shall be lettered on the Record Drawings and stamped and signed by the Sponsor's Surveyor and/or Construction Engineer certifying the Record Drawings: "I have reviewed the construction and to my knowledge find it to be in substantial conformance with the approved certified plans and Standard Specifications except as noted."

When changes to the design are necessary, the Sponsor shall be responsible for obtaining approval of plan changes from the Sponsor's Design Engineer. The Sponsor shall forward a copy of the approved plan changes, and any related calculations, to the County Engineer.

10.00 SURETY

10.01 PERFORMANCE SURETY

1. Road and Drainage Improvements

The Surety will generally address the construction and installation of all public road, private alley, and private road improvements, including but not limited to the roadway, drainage improvements, utility work within County right-of-way, monumentation, construction inspection, and other costs. For commercial building permits, the guarantee shall apply to improvements in the public right-of-way, and drainage improvements, located in tracts or easements on the project site, which serve the public right-of-way. In any case, the Surety shall be in an amount equal to at least 110% of the County Engineer's estimate.

In order to obtain Final Approval of a Project (either a Land Use Action such as a Plat, Short Plat, or Binding Site Plan, or a Certificate of Occupancy for a Commercial Project), a private Sponsor must select one of these options: (1) Post a Surety prior to construction; or (2) Partially construct the Project and provide a Surety; or (3) Complete construction of the Project, certify the construction, obtain the County Engineer's acceptance of the Project Certification Package, and post a warranty Surety prior to final approval of the Project.

The Sponsor is not required to post a Surety prior to Final Approval. However, the County Engineer will only recommend Final Approval if either the required improvements have been constructed and certified by the Sponsor, and accepted by the County Engineer, or a Surety acceptable to the County Engineer has been posted.

The Sponsor may select one of three methods to provide the surety. (1) Post a surety prior to construction; or (2) Partially construct the Project and provide a surety instrument; or (3) Complete construction of the Project and receive County Engineer acceptance of the Project Certification Package and post a warranty bond prior to final approval of the Project. The Surety that is posted with the Spokane County Engineer for compliance with this section shall conform to the following conditions:

- a. The surety shall be of a form approved by the Prosecuting Attorney's Office and acceptable to the County Engineer. The surety amount shall be in United States currency.
- b. Acceptable surety instruments are:
 - Cash Savings Assignment, held by a duly chartered Financial Institution;
 - Letter of Credit issued by a duly chartered Financial Institution; or
 - Surety Instrument ("Bond") issued by a duly chartered Bonding Company.

- c. The term of the surety shall be for two years from the date of the County Engineer's Plan acceptance. The surety may be extended for an additional two years at the option of the County Engineer. The County Engineer will then calculate a new surety amount.
- d. At the discretion of the County Engineer, a cash surety (either a Cash Savings Assignment or a Letter of Credit) may be reduced with satisfactory progress on the project. The surety shall not be reduced below \$20,000, or 20% of the original surety amount, whichever is greater.
- e. A performance surety will not be required if the improvements are constructed and certified according to these standards prior to final development approval.

A. Performance Surety Prior to Construction

The Sponsor may choose to post a surety for the entire estimated construction and inspection cost in order to obtain Final Approval. The County Engineer shall estimate the amount of the surety. The surety shall be structured in two parts as follows:

1. A Performance Retainer of at least \$7,500.00 or 10% of the surety amount, whichever is greater, naming Spokane County as beneficiary. The Performance Retainer shall be in the form of a Cash Savings Assignment or a Letter of Credit.
2. A Performance Guarantee shall be a separate surety instrument comprising the remainder of the guarantee amount naming Spokane County as beneficiary. The Performance Guarantee shall be in the form of a Cash Savings Assignment, Letter of Credit, or Surety Instrument.

Under this option, Final Approval will not occur until the Design Documents have been accepted by the County Engineer's Office, and an acceptable surety has been posted.

B. Partial Construction Before Final Approval

The Sponsor may choose to construct a portion of the required road and drainage improvements in order to obtain Final Approval. Under this option, The County Engineer will accept only a Cash Savings Assignment as surety for the portion of the Project that has not yet been constructed at the time Final Approval is requested. The amount will be recalculated from the original surety estimate, to account for such elements as changed quantities, revised unit prices, construction of the remaining work through Public Works contracting procedures, project inspection and certification, etc.

Under this option, Final Approval will not occur until:

1. The Sponsor's Engineer has submitted Certified Record Drawings and associated Inspection Reports for the Project (the "Certification

Package") to the Spokane County Engineer for the constructed improvements constructed to date;

2. The Spokane County Engineer has provisionally accepted the Certification Package; and
3. The Sponsor has posted a Cash Savings Assignment or Letter of Credit for any remaining road and drainage improvements (public or private), in accordance with the edition of the Spokane County Standards for Road and Sewer Construction (the "Standards") applicable to the Project, and the accepted plans on file at the Spokane County Engineer's Office. As a minimum, the Sponsor shall post the Performance Retainer, based on the original quantities shown on the approved and accepted plans on file at the County Engineer's Office, as amended.

Note: The surety for this option shall be in the form of a Cash Savings Assignment in an amount as estimated by the County Engineer. The surety shall include a date ("date certain") for the completion of the remaining work. The "date certain" must occur prior to the original expiration date of the plan acceptance. The surety shall include a provision that failure to obtain the County Engineer's acceptance of the remaining work by the "date certain" shall constitute a material breach, and shall be grounds for immediate demand by the Spokane County Engineer for full payment of the entire amount of all surety instruments relevant to this Project. The proceeds of the surety shall be used by the County Engineer to complete the remaining work. Any surplus shall be refunded to the Sponsor upon the County Engineer's acceptance of the completed work. The Sponsor shall reimburse the County Engineer's Office for any costs in excess of the amount of the total amount of the surety incurred by the County, including but not limited to construction, inspection, administration, collection agency fees, and legal expenses incurred in securing the surety and completing the work.

C. Complete and certify construction before Final Approval

The Sponsor may choose to construct all of the required road and drainage improvements prior to obtaining Final Approval. Under this option, Final Approval will not occur until such time as:

1. All required improvements for the Project are constructed in accordance with the accepted plans on file at the Spokane County Engineer's Office; and
2. The Sponsor's Engineer has submitted complete Certified Record Drawings and associated Inspection Reports for the Project (the "Certification Package") to the Spokane County Engineer; and

3. The Spokane County Engineer has accepted the Certification Package; and
4. The Sponsor has posted a Cash Savings Assignment, Letter of Credit, or Surety Instrument to warranty the construction and materials for any required public road and drainage improvements, in accordance with the current edition of the Spokane County Standards for Road and Sewer Construction (the "Standards"). The term of the warranty surety shall be as described in Section 10.02.

D. Reductions in Surety; Surety Release

1. General

Any reductions in the surety described in Paragraphs 1 and 2, if allowed by Spokane County, will not apply to the Performance Retainer. Reductions in the surety amount will only be applied on Cash Savings Assignments or on Letters of Credit. In no case will the aggregate amount of surety reduction exceed the amount given by the formula:

$$\text{Total aggregated reduction} = 90\% \times (\text{Total Surety} - \text{Retainer})$$

Examples of the surety computations are shown in Technical Reference D. Reductions in Cash Savings Assignments or Letters of Credit will only be made if:

- a. The Sponsor's Engineer has submitted Certified Record Drawings and associated inspection reports for the project (the "Certification Package") to the Spokane County Engineer for the improvements constructed to date; and
- b. The Spokane County Engineer has provisionally accepted said Certification Package; and
- c. The reductions do not exceed the aforementioned percentage threshold; and
- d. Only for projects, which in the professional opinion of the County Engineer, are making steady progress, and for which plan acceptance has not expired.

2. Substantial Completion

The County Engineer may, at his discretion, may further reduce a Cash Savings Assignment or Letter of Credit prior to Final Acceptance of the improvements and Final Plat Approval. This will only occur when the County Engineer determines that the improvements have reached substantial completion.

If the work is substantially complete, and a Cash Savings Assignment or Letter of Credit has been posted for the project improvements, then the surety may be further reduced to an amount equal to twice the estimated cost for Spokane County to complete the remaining work if a "date certain" is established. Weather impacts shall be considered in defining the "date certain". The amount of the Cost Estimate shall be determined by the County Engineer.

Once the Substantial Completion Surety has been posted, the County Engineer may, at his sole discretion, recommend Final Approval to the Board of County Commissioners. The Board of County Commissioners is not legally bound by the County Engineer's recommendation. The County Engineer's recommendation is not to be construed as a guarantee or warranty of any sort that the Board of County Commissioners will, in fact, grant Final Plat Approval.

This option will not be available to the Developer if:

- a. The current amount of the Cash Savings Assignment (in excess of the Performance Retainer) is less than twice the estimated cost of completion.
- b. A Surety Instrument ("Bond") has been posted.
- c. An initial construction surety has not been posted for the project (Paragraphs 10.01(2) and 10.01(3)).
- d. The Sponsor has existing projects that have not been completed prior to the expiration date of the plan acceptance for the current phase.

3. Surety Release

The County Engineer will release the performance surety in full only when all of the following conditions have been met:

- a. The Sponsor's Construction Engineer submits the required certification that the project has been constructed in substantial conformance with the certified construction plans and specifications.
- b. The Sponsor submits certified "Record Drawings" and project records of all road and drainage improvements constructed for the project.
- c. The Sponsor has paid all costs incurred by the County in full.
- d. All monuments have been reset and referenced by a surveyor.
- e. (Public Roads only) The County has received a warranty surety or cash security as specified in Section 10.02 of these standards.

- f. (Public roads only) The roads have been established by resolution of the Board of County Commissioners.

2. Sureties for Sanitary Sewer Improvements

A. Plats

For Plats, Short Plats, or other land use actions requiring public sewer collection system final approval will only be recommended if either the required improvements have been constructed by the Developer, accepted by the Utilities Division (to include Record Drawings), and secured at the warranty amount, or if a surety acceptable to the Utilities Director has been posted.

If Public off-site Sewer Extension is not required:

The Sponsor shall post a surety equal to the amount estimated by the Utilities Department for the on-site sewer improvements, prior to Final Approval.

If Public off-site Sewer Extension is required:

The Sponsor shall post separate sureties equal to the amount estimated by the Utilities Division for the on-site sewer improvements and for the off-site extension, prior to Final Approval.

When the construction has passed the air test and mandrel test, the guarantee may be reduced to 50% of the initial amount.

When the Utilities Division has accepted the sewer construction for operation and maintenance, and Record Drawings have been approved, the guarantee may be reduced to 25% of the initial amount. This 25% will be held as security for the duration of a warranty period. If either of the initial guarantee amounts exceed \$100,000, then the security will be 20% of the respective initial amount.

B. For Commercial Projects:

Private Sewer System:

No surety is required for private sewer systems. Plans must be submitted to the Utilities Division and accepted for construction prior to issuance of a Sewer Connection Permit. Inspection of sewer construction must also be scheduled through the Utilities Division.

Public Sewer Extension required:

A surety, acceptable to the County Utilities Director, must be posted prior to sewer construction plans being accepted by the Utilities Division. Sewer connection permits will be issued only when the Utilities Division has accepted the sewer extension construction for operation and maintenance (subject to a one year warranty period) and record drawings have been approved.

10.02 WARRANTY SURETY

The sponsor of a private development shall post a warranty surety for improvements within or serving County rights-of-way with the County Engineer before:

1. The acceptance of construction by the County Engineer; and
2. The establishment of any public road(s) by the Board of County Commissioners;
and
3. The release of the performance surety.

The Warranty Surety shall conform to the following:

- A. The surety for improvements within public rights-of-way shall remain in effect for two years from the date of establishment of the road(s) by the Board of County Commissioners.
- B. The warranty surety shall be for an amount equal to 20% of the County Engineer's estimate of the construction costs or \$10,000, whichever amount is greater. The County Engineer, at his/her discretion, may reduce the warranty surety amount for projects valued at less than \$20,000. For approved, non-standard facilities, the County Engineer may require additional surety up to 100% of the estimated replacement cost of the non-standard facility.
- C. The Warranty Surety shall guarantee against defects in road construction, utility work performed within the County right-of-way, and/or drainage facilities as determined by the County Engineer.
- D. The release of the Warranty Surety for improvements within public rights-of-way shall take place two years from the date of the establishment of the roads by the Board of County Commissioners. Thirty days prior to expiration of the warranty surety, the Sponsor shall retain a professional engineer to inspect the improvements. Any deficiencies noted must be repaired prior to the surety release. If the inspection is not conducted and the deficiencies are not repaired, the warranty surety shall be renewed by the Project Sponsor until the inspection is conducted and needed repair work is completed.

10.03 PERMIT SURETIES

A surety, commensurate with the extent of work to be done, shall be posted with the County Engineer before the issuance of a permit to work within public roads.

TECHNICAL REFERENCE A

Traffic Studies and Review Standards

Introduction

Traffic studies or site impact studies are required by the Spokane County Engineer to examine the demands that development may or may not have on the surrounding transportation system. The need for a traffic study shall be determined on a case by case basis. A list of general guidelines and decision criteria are available in §1.30, Traffic Impact Study, of the *Spokane County Standards for Road and Sewer Construction*.

This handout has been prepared to provide engineers, planners, and developers with information regarding traffic impact study requirements within Spokane County. It is not intended to be a textbook or all inclusive of the possible scenarios or requirements that may be encountered during a study. It is believed that by following the guidelines and recommendations made within this handout, the time spent during the application and review process may be reduced.

Scoping

A scoping meeting should be scheduled with Spokane County prior to starting the field work for the study. During the scoping meeting, the general requirements of the study will be discussed. It shall be the responsibility of the developer/consultant to initiate and coordinate the scoping meeting. Although not required, Spokane County recommends that a joint scoping meeting with all reviewing agencies be coordinated through the project's traffic consultant. The following is a list of items that shall be discussed during the scoping meeting and recorded on the Traffic Study Scope Worksheet found at the end of this appendix.

1. Project description
 - A. proposed land uses (if known)
 - B. trip generation
 - C. pass-by & diverted trips
2. Project phasing and horizon year
3. Anticipated directional distribution of project traffic.
4. Background projects
5. Background growth rate (non site specific)
6. Affected intersections for study

Public Participation

Two public meetings shall be held within the project study area. A public scoping meeting shall be conducted by the developer/consultant to allow public input to the scope of the project and following study. It is anticipated that with the public scoping meetings, additional neighborhood issues will be brought forward and addressed and/or resolved prior to the public hearing.

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

The second public meeting shall be after the traffic study work is complete and is intended to brief the surrounding neighborhood on the traffic study results. All costs associated with the public meetings (signs, room rental, notification mailing, etc.) shall be the responsibility of the developer/consultant.

Public Notification

Notice of date, time, place and purpose of the public meetings shall be provided by the following means.

1. One publication in Spokane County's official newspaper at least fifteen (15) days prior to the meeting.
2. Adjacent residents, property owners, neighborhood groups and/or organizations within a four hundred (400) foot radius of the project boundaries shall be notified by a mailing not less than fifteen (15) days prior to the public meeting.
3. Additionally, a sign with dimensions no less than four (4) feet in width and four (4) feet in height and lettering three (3) inches in size shall be erected on the subject property fronting and adjacent to the most heavily traveled public street. The sign must be easily read by the traveling public from the right of way at least fifteen (15) days prior to the meetings. This sign shall announce the date, time and place of the traffic meetings and brief description of the project.

Proper notification and all associated costs shall be the responsibility of the developer/consultant. Notification shall be considered satisfied upon receipt of an affidavit provided by the developer/consultant to Spokane County stating the above requirements have been completed.

Traffic Study Report

The means by which the work of the traffic study is conveyed to others is through the traffic study report. The traffic study report should stand on its own merits. There should be sufficient information and detail to allow the reader to follow the study step by step and draw the same conclusions as the author. The report should be factually based, written from an impartial viewpoint and report all aspects of the traffic study work that was undertaken. In addition, the report should be written such that the lay person, someone not familiar with traffic studies (e.g., political decision-makers and citizens), will be able to understand and follow the process, findings and recommendations.

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

As a general rule, the traffic study report shall include, but not be limited to, the following.

- I. Title Page
 - A. Name of Project
 - B. Project Sponsor's Name and Address
 - C. Study Preparer's Name, Address and Phone Number
 - D. Date of Study Preparation
 - E. Responsible Engineer's Seal, Signature and Date
- II. Table of Contents
 - A. Major Sections
 - B. List of Figures
 - C. List of Tables
- III. Executive Summary
 - A. Site Location and Study Area
 - B. Development Description
 - C. Principal Findings
 - D. Conclusions
 - E. Recommendations
- IV. Introduction
 - A. Purpose of Report and Study Objectives
 - B. Project Description
 - C. Scope of the Report
 - D. Assumptions
 - E. Methodology
- V. Existing Conditions
 - A. Transportation Network Description
 - B. Existing Zoning
 - C. Existing Traffic Volumes
 - D. Accident History
- VI. Proposed Other Development (Background Projects)
 - A. Background Project Description
 1. Vicinity Map
 2. Trip Generation
 3. Trip Distribution
 4. Trip Distribution
 - B. Planned Roadway Improvements
 1. Project Name
 2. Description of Improvements

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

VII. Proposed Project

- A. Project Description**
 - 1. Site Plan
 - 2. Trip Generation
 - 3. Trip Distribution
 - 4. Trip Assignment
- B. Project Phasing and Timing**

VIII. Traffic Analysis

- A. Existing Volumes and LOS**
- B. Future Volumes and LOS without Project at Each Phase**
- C. Future Volumes and LOS with Project at Each Phase**
- D. Future LOS with Proposed Improvements at Each Phase**
- E. Future Volumes and LOS without Project at Complete Build-out**
- F. Future Volumes and LOS with Project at Complete Build-out**

IX. Other Analysis

- A. Sight Distance**
- B. Queuing**
- C. Safety**
 - 1. Vehicle
 - 2. Pedestrian
- D. Noise**
- E. Air Quality**
- F. Analysis of Improvement Alternatives**

X. Conclusions

- A. Traffic Impacts**
- B. Needed Improvements**

XI. Recommendations

- A. Proposed Mitigation**
- B. Proportionate Share Recommendations**
- C. Other Recommendations**

XII. Appendix

- A. Raw Turn Movement Counts**
- B. LOS Calculation Sheets**
- C. Other Information Provided**

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

The above outline provides the minimum criteria for a detailed traffic study report. Where the size/scope of the project or work to be performed would not warrant inclusion of all of the topics above, a shorter report format may be used. In this case, the topics to be included in the report would be discussed during the scoping process.

Additional Information

Background Growth Rate (non-site specific) - The annual percentage rate of traffic growth that cannot be assigned to a specific project. This rate is to be applied to the existing turn movement volumes prior to the addition of the background project traffic or site generated traffic volumes.

Background Project Traffic - The total site generated traffic volumes for approved background projects shall be used in the build-out analyses of the proposed project irrespective of each projects anticipated completion date. This is required to ensure that capacity that was available when the background project was approved is still available at the completion of the proposed project. Quicker developed projects will not be allowed to deplete the capacity needs of longer-term development.

Level of Service (LOS) - Levels of Service shall be determined in accordance with the methods reported in the latest edition/update of the *Highway Capacity Manual*, Special Report 209.

Pass-by Trips - Pass-by trip reductions, if used, shall be shown and calculated on separate figures. The pass-by rates must be established during the scoping process. Rates and procedures shown in the latest edition of the *ITE Trip Generation* manual may be used. For those land uses without pass-by trip rates, sufficient documentation supporting the proposed rates shall be provided to and accepted by Spokane County.

Peak Hour Factors (PHF) - Peak hour factors shall be determined from the recorded turn movement volumes and used throughout the study. For cases where a peak hour factor was not calculated or was unable to be calculated, the default values contained in the latest edition/update of the *Highway Capacity Manual* shall be used.

Responsible Engineer - The engineer that is responsible for the work of the study and report shall affix his/her seal on the cover page of the report. The responsible engineer shall be licensed in the State of Washington and have experience in traffic/transportation engineering.

Right Turns on Red (RTOR) - RTOR movements, if they are to be used as reductions in the study, shall be recorded in the field and submitted with the turn movement counts. The number of vehicles that can take advantage of this maneuver greatly varies by intersection and area.

TECHNICAL REFERENCE A

Traffic Studies and Review Procedures

As v/c ratios increase, fewer gaps will be available to allow RTOR movements and a methodology for use in future year scenarios shall be provided and accepted by Spokane County prior to submission of the traffic study report.

Trip Generation - Trip generation shall be based on local trip generation rates for similar facilities provided there has been sufficient study to provide good statistical significance. Where local rates are not available, the rates contained in the latest edition of the ITE *Trip Generation* manual shall be used.

Turn Movement Counts - As a general rule, traffic counts should be recorded less than one year prior to submitting a traffic study. Older counts may be used provided they are adequately factored to represent current volumes and the methods used in determining and applying the factors are discussed in the report. Counts older than two years shall not be used.

Updated Studies - Occasionally traffic impact studies will need to be updated and/or revised. Should this be necessary, all information and procedures shall be brought into conformance with these standards. For example, new turn movement counts may need to be gathered depending on the age of counts or change in traffic patterns, phasing and/or build-out year may need adjusted, etc. Where the revisions to a study are minor and would not warrant the submission of a new report, errata sheets shall be provided along with a notice to affected parties to make the necessary additions, deletions and/or changes.

References

Guidelines for Traffic Impact Reports/Studies, State Highway Administration, Maryland Department of Transportation.

Highway Capacity Manual, Special Report 209, Third Edition. Washington D. C.: Transportation Research Board, 1985, Updated 1994.

Site Impact Traffic Evaluation (SITE) Handbook. Washington D. C.: Federal Highway Administration, 1985.

Traffic Access and Impact Studies for Site Development. Washington D. C.: Institute of Transportation Engineers, 1991.

Trip Generation, Fifth Edition. Washington D. C.: Institute of Transportation Engineers, 1991.

Traffic Study Scope Worksheet
Transportation Engineering

Name of Project _____		
Planning File Number _____	S-T-R _____	Lead Planner _____
Date of Scoping Meeting _____		
Attended By _____		
Description of Project _____		
Land Uses(if known) _____		
Project Phasing _____	Build Out Year _____	
Public Scoping Meeting: Date _____	Time _____	Place _____

Scope of Study

☐ Environmental Impact Statement ☐ Full Traffic Study ☐ Other Study/Review

Intersections to Study _____

Background Development Projects _____

Background Growth Rate _____ Pass-by Traffic Rate _____

Site Distance Analysis _____

Area Transportation Improvement Projects (Planned/Scheduled) _____

Anticipated Directional Distribution of Project Traffic _____

Other Comments _____

* Final scope will be established after the first public meeting and upon receipt of a distribution letter and map from the project's traffic engineer.
* This scoping document fulfills the requirements set forth by Spokane County Engineering. Additional analysis may be required by other reviewing agencies.

04/99

TECHNICAL REFERENCE B

Structural Pavement Design of Flexible Pavements

Pavement Design Criteria

The pavement design criteria is summarized in Sec. 3.16 of the Spokane County Standards for Road & Sewer Construction, which references the AASHTO *Guide for Design of Pavement Structures*, 1993.

The structural pavement calculations, soil sample locations, lab results, design criteria and recommendations are to be included in a report prepared by the Sponsor's Engineer. All design factors used are to be listed in the report, including traffic loads projected to occur over the life of the pavement. The report is to be stamped by an engineer, licensed in the State of Washington.

The following parameters are to be used in the design of flexible pavements, unless technical justification can be provided which demonstrates that certain other parameters and constants are applicable.

1. The County standard pavement design life is 20 years for new construction, 15 years for pavement overlays.
2. Truck Factors will be determined for each vehicle type or the following factors may be used in the absence of other information available:

Vehicle Type	Factor (ESAL/Vehicle)
School Bus	2.87
STA Bus	2.57
Refuse Truck	1.03
All Other Trucks	0.42
averaged	

3. The Level of Reliability, R is to be as follows:
Local Access, R = 75% All other Public Road Classifications, R = 90%
4. The overall Standard of Deviation (S) is to be as follows:
New Construction, S = 0.45 Overlay, S = 0.49

TECHNICAL REFERENCE B

Structural Pavement Design of Flexible Pavements

5. The Initial and Terminal Serviceability Indexes (PSI) are to be as follows:

Road Class.	PSI (initial)	PSI (terminal)
Local Access	4.2	2.00
Minor Arterials & Collectors	4.2	2.25
Principal Arterials	4.2	2.50

6. The Structural Layer Coefficients (aj) and Drainage Coefficients (mj) for new material is to be in accordance with Table 2.4 and Appendix DD of the AASHTO *Guide for Design of Pavement Structures*, 1993. In the absence of following the more rigorous design approach outlined in these two references, the following factors can be used:

Material	Structural Coeff.	Drainage Coeff.
ACP Class A	0.42	1.00
ACP Class E	0.42	1.00
Crushed Surfacing Top Course	0.14	0.95
Crushed Surfacing Base Course	0.14	0.95

Soil Sampling Procedure

The Engineer shall obtain soil samples which sufficiently represents the subgrade, and identifies where significant changes in subgrade strength occurs. Normally, the following procedure needs to be followed:

1. Obtain a minimum of 3 samples per job per SCS soil type. Larger projects will require more frequent sampling;
2. Conduct soil borings/test pits to a minimum of 5 ft. depth below proposed subgrade, classify the soil per the USC method;
3. Provide written soil logs; and
4. Record the station, offset and elevation of the samples, stationing is to correspond with the road plans.

TECHNICAL REFERENCE B

Structural Pavement Design of Flexible Pavements

Subgrade Modulus

For structural pavement design of roadways that are not within residential neighborhoods, or not subject to residential type traffic loading, an analysis of the resilient modulus and traffic loading is necessary. The resilient modulus can be acquired using the following methods:

1. Contract with a private firm/laboratory to perform the M_R testing. Soil samples need to be obtained, and sent to the private lab for testing.
2. Obtain soil samples and have a WSDOT lab perform the test work. WSDOT will not perform the work directly for private developers or consulting engineers; however, they will perform the work for Spokane County. This work can be requested through Spokane County if the work will be for public road construction. Once Spokane County receives the soil samples, the County will deliver them to a WSDOT lab.
3. Conduct in-situ testing of the subgrade using a non-destructive deflection test method. The results are to be reported by road stationing. The Sponsor shall acquire concurrence with the County Engineer on the type of non-destructive deflection test method proposed, prior to conducting the tests.
4. Index testing of soils. For certain USC soil classifications, Indexed values can be used to estimate the resilient modulus (M_R), in lieu of conducting resilient modulus testing. The Index values are listed in the table below. Soil sampling to classify the soil and record its location, shall be done in accordance with the Soil Sampling Procedure listed in this Technical Reference.

Soil Type per Unified Soil Classification System (USC)	Resilient Modulus Values (M_R) psi low-high range ⁽¹⁾
GW	15,000
	18,000
GP or GM	10,000
	12,000
SW	8,000
	10,000
SP or SM	5,000
	10,000

Note (1) The gradation and fines content needs to be considered when selecting an appropriate M_R value. An M_R value near the low end of the specified range for SP or SM is appropriate for predominately fine sands or silty sand with a fines content exceeding approximately 25%. An M_R value near the high end of the specified range for SP or SM soils is appropriate for predominately medium to coarse sands or silty sands with less than 25% fines. Fines content is the soil which passes a #200 sieve.

TECHNICAL REFERENCE B

Structural Pavement Design of Flexible Pavements

For the non-destructive deflection test method a statistical analysis is needed, and is to include a graph of the tested resilient modulus values -vs- road stationing (i.e. location). The graph shall be included in the design report prepared and submitted by the Sponsor's Engineer.

In certain limited cases, the of non-destructive deflection test equipment which is owned and operated by Spokane County is available for privately sponsored road construction projects. The equipment needs a driveable surface over the proposed subgrade. County road projects always take priority. But, if there is an interest in paying for the use of the equipment, please call the Spokane County Engineer's Office to check on availability and make the necessary arrangements.

TECHNICAL REFERENCE C
Sample Project Agreement

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS
ENGINEERING AND ROADS DIVISION
1026 W. Broadway Ave.
Spokane, WA 99260

PROJECT AGREEMENT
Plats –Short Plats– Binding Site Plans – Building Permits

1. Preliminary Plat/Permit Number and Name:	2. AGREEMENT Number
3. Sponsor's Name and Address:	4. Site Location/Section-Range-Township:

This AGREEMENT is made and entered into this _____ day of _____, 20____, by and between Spokane County, a political subdivision of the State of Washington, having offices for the transaction of business at 1116 West Broadway, Spokane Washington, 99260, hereinafter referred to the COUNTY, and _____, having offices for the transaction of business at _____, hereinafter referred to as the SPONSOR, and jointly referred to as the PARTIES. All references in this AGREEMENT to the SPONSOR shall include the SPONSOR and its heirs, successors and assigns. All references in this AGREEMENT to the COUNTY shall include Spokane County and its successor political jurisdictions.

WITNESSETH

WHEREAS, SPONSOR's Preliminary Plat/ Short Plat No. _____ (hereinafter referred to as the "PROJECT"), containing various conditions of approval imposed pursuant to RCW 58.17 and the Spokane County Subdivision Ordinance, was approved on _____; and

WHEREAS, the SPONSOR seeks to have the road and drainage plans required for the PROJECT approved by the SPONSOR's Engineer and accepted by the Spokane County Engineer; and

WHEREAS, the Spokane County Engineer will accept the road and drainage plans for the PROJECT upon the SPONSOR's successful compliance with this Agreement and all conditions of approval, Spokane County Code, other Codes and regulations, and other conditions of any Design Deviation Request Approval as deemed necessary by the Spokane County Engineer, applicable to the PROJECT; and

TECHNICAL REFERENCE C

Sample Project Agreement

WHEREAS, the Spokane County Engineer is authorized under the provisions of Spokane County Code Section 9.14.040 to require the posting of a surety or bond to (a) guarantee the performance of conditions imposed on various Land Use Actions, and (b) to warranty the quality of workmanship and materials in all road, approach, and drainage facility construction required by said Section 9.14; and

WHEREAS, this AGREEMENT is intended to clarify various elements of policies of the Spokane County Division of Engineering, and to bring to the attention of the PARTIES various requirements of Spokane County Code and other regulations applicable to the PROJECT; and

WHEREAS, pursuant to Resolution No. _____, the Spokane County Board of County Commissioners have authorized the Spokane County Engineer and the Spokane County Utilities Director to enter into Agreements with Project Sponsors, in which various elements of policies of the Spokane County Division of Engineering, and various requirements of Spokane County Code and other regulations applicable to various Development Projects are clarified.

NOW THEREFORE, the SPONSOR hereby agrees and binds itself and its legal representatives, successors, and assigns, as follows:

TERMS OF THE AGREEMENT:

1. This AGREEMENT is not to be construed in any manner whatsoever as a waiver of any Conditions of Preliminary Plat (or Short Plat) Approval, Spokane County Code, other Codes, statutes or regulations applicable to the PROJECT. Such provisions will continue to apply with full force and effect, in addition to the terms of this AGREEMENT.
2. The SPONSOR shall fulfill all conditions of approval of the PROJECT, and all other requirements of Spokane County Code, other Codes and regulations, and other conditions of Design Deviation Request Approval as deemed necessary by the Spokane County Engineer, applicable to the project, even if these requirements are not set forth in this AGREEMENT.
3. The SPONSOR hereby designates _____, whose address is _____ and whose telephone number is _____ or _____, as the PROJECT REPRESENTATIVE for this project, who shall be empowered to act within the scope of his or her responsibilities as defined herein, for the undersigned SPONSOR.

It shall be the PROJECT REPRESENTATIVE'S responsibility to ensure that the Developer's project timeline is met, through communicating and coordinating between the Developer, the Design Engineer, and the County, to ensure that all Design Standards and submittal requirements are clearly understood and met. The PROJECT REPRESENTATIVE is the primary contact person between Spokane County and all other parties who may need to provide services toward the successful completion of this Project. The PROJECT REPRESENTATIVE's responsibilities shall include, but not be limited to: a) Project coordination & communication to

TECHNICAL REFERENCE C

Sample Project Agreement

ensure that the project moves forward in a timely manner, from Project Application through Construction Completion; b) Objectively informing the Developer of the project status, and potential problems, and working with the applicable parties to anticipate and resolve problems; c) Ensuring that the Developer's Engineer coordinates construction plan changes for approval through the Spokane County Division of Engineering, prior to implementing the change in the field as much as possible; d) Coordinating inspection report submittals, construction close-out, bonding issues, construction payments, and certification, up to and including acceptance of Record Drawings through Final Warranty Surety Release; e) Coordinating responses to project-related questions or information requests from the Spokane County Division of Engineering; f) ensuring that the Traffic Control Plan is being followed by the Contractor; g) coordinating neighborhood notifications, and h) resolving construction complaints .

4. Prior to beginning design, a pre-design conference shall be held between the COUNTY, the SPONSOR, the SPONSOR's Project Representative, and the SPONSOR's Engineer. If the PROJECT is located in a City/County Joint Planning Area, a representative of the Spokane City Engineer may also attend. This conference is an opportunity for the SPONSOR to raise any questions about the County's Design Standards, Conditions of Approval, or administrative items. The SPONSOR is encouraged to submit questions in writing prior to the conference for consideration at the conference.
5. Prior to submittal of any design documents, a pre-submittal meeting must be held between the Developer, the Design Engineer, and the Spokane County Division of Engineering, to ensure that Design Documents conform to the applicable County Standards and the Conditions of Approval. Incomplete Design Documents should not be approved by the SPONSOR'S Engineer and should not be submitted to Spokane County for Acceptance. If the Design Standards are clearly understood and met, and if all submittal items necessary to form a complete and approved submittal are included, then it is possible for a given project to obtain Construction Plan or Record Drawing acceptance from the County with a minimum of resubmittals.
6. Prior to beginning construction, a pre-construction conference shall be held between the SPONSOR, the SPONSOR's Project Representative, the SPONSOR'S Contractor(s) and the SPONSOR's Construction Engineer. A copy of the conference minutes shall be provided to the Spokane County Division of Engineering as part of the construction documents.
7. The SPONSOR must submit to the Spokane County Engineer, and the Spokane County Engineer must approve in writing, any major changes from the approved plans proposed by the SPONSOR, prior to beginning such work in the field. Minor plan changes are to be documented in the Project Inspection Daily Reports and Project Summary Reports, which are to be submitted on a weekly basis to the County Engineer. The County Engineer will utilize a "fast-track" system to process changes when time does not allow for processing plan changes in the standard fashion.
8. The SPONSOR shall be responsible for costs of any corrective work (construction or warranty) on or off the site to the extent that such corrective measures are associated with

TECHNICAL REFERENCE C

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- work performed and/or not completed pursuant to Spokane County Code Sections 9.14.030, .040, .050, .200, .250, and others as may be applicable.
9. The SPONSOR shall implement all necessary erosion-sedimentation measures/facilities to ensure sediment-laden water does not enter natural or human-made drainage facilities and will maintain them until such time as erosion potential has passed pursuant to Spokane County Board of County Commissioners Resolution No. 98-0201, as amended. In the event erosion and sedimentation is observed and upon written notice by Spokane County, the SPONSOR shall immediately take corrective actions to prevent erosion on or off the site pursuant to said Resolution 98-0201, as amended.
 10. Prior to a recommendation of Final Plat Approval by the County Engineer, the SPONSOR may, at the County Engineer's discretion, post a financial surety to guarantee construction, inspection, and certification of the road and drainage improvements required for the PROJECT. The financial surety or guarantee shall be in a form approved by the Spokane County Prosecuting Attorney and in an amount acceptable to the County Engineer. The financial surety or guarantee shall remain in full force and effect unless and until specifically released in writing, or otherwise modified by the Spokane County Engineer. All financial sureties or guarantees must include a provision that they may not be cancelled or otherwise impaired unless the Spokane County Engineer has provided expressed written consent to the proposed cancellation or other impairment at least 30 calendar days prior to the desired date of cancellation. All financial sureties or guarantees must also include a provision that a notice of cancellation or other impairment, or a failure to maintain a financial surety or guarantee as agreed upon herein, shall constitute a material breach and shall be grounds for immediate demand by the Spokane County Engineer for full payment of the entire amount of all financial surety and/or guarantee instruments relevant to this PROJECT, subject thereafter to revision or refund as may be determined appropriate by the Spokane County Engineer.
 11. Prior to a recommendation of Final Plat Approval by the County Utilities Director, the SPONSOR may, at the discretion of the County Utilities Director, post a financial surety to guarantee construction, inspection, and certification of the sanitary sewer improvements required for the PROJECT. The financial surety or guarantee shall be in a form approved by the Spokane County Prosecuting Attorney and in an amount acceptable to County Utilities Director. The financial surety shall remain in full force and effect unless and until specifically released in writing, or otherwise modified by the Spokane County Utilities Director. All financial sureties or guarantees must include a provision that they may not be cancelled or otherwise impaired unless the Spokane Utilities Director has provided expressed written consent to the proposed cancellation or other impairment at least 30 calendar days prior to the desired date of cancellation. All financial sureties and/or guarantees must also include a provision that a notice of cancellation or other impairment, or a failure to maintain a financial surety or guarantee as agreed upon herein shall constitute a material breach and shall be grounds for immediate demand by the Spokane County Utilities Director, for full payment of the entire amount of all financial surety or guarantee instruments relevant to this PROJECT,

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subject thereafter to revision or refund as may be determined appropriate by the Spokane County Utilities Director.

12. The SPONSOR hereby grants the COUNTY and its officials, employees, and agents the right to enter and inspect the project site, and, in the event of any failure to perform terms of this AGREEMENT, to implement such corrective measures as the COUNTY deems necessary.
13. The SPONSOR agrees not to begin construction of any of the road or drainage improvements for the PROJECT, or otherwise disturb the PROJECT site, until the construction plans for same have been accepted by the Spokane County Engineer for construction, and a permit has been issued for said construction by the Spokane County Engineer, pursuant to Spokane County Code Sections 9.14.080, .110, .230, and other sections as may be applicable.
14. The SPONSOR agrees and covenants that all of the road and drainage construction for the PROJECT shall be completed no later than two (2) years from the date of the Spokane County Engineer's plan acceptance. If construction is not complete on the said date of completion, the SPONSOR will be in default. If SPONSOR is in default, Spokane County is authorized to call upon the financial guarantee in accordance with the terms and conditions of the financial guarantee to complete the improvements that are covered by said financial guarantee. Any failure on the part of the SPONSOR to proceed with due diligence and in good faith in the construction, maintenance, and/or monitoring work provided herein shall, upon written notice by the Spokane County Engineer, constitute a default of the terms of this AGREEMENT. If any extension of time is granted to the plans, an addendum to this agreement must be executed with revised bonds being submitted which reflect the most current construction costs that are indexed to the revised completion deadline.
15. The SPONSOR shall be responsible for the proper performance, safe conduct and adequate policing and supervision of the project. This responsibility shall not be lessened or otherwise affected by the COUNTY's review of plans, specifications, or work, or by the presence at the work site of the COUNTY's representative(s), or by the compliance by the SPONSOR with any written or verbal requests made by said representative(s) (e.g., "punchlists", memoranda, or other communications).
16. This AGREEMENT shall remain in effect and any applicable associated financial guarantee (Warranty Surety) shall not be released until the applicable warranty period has expired.
17. The SPONSOR shall indemnify and hold the COUNTY and its agents, employees and/or officers harmless from and shall process and defend at its own expense all claims, damages, suits at law or equity, actions, penalties, losses, or costs of whatsoever kind or nature, brought against the COUNTY arising out of, in connection with, or incident to the execution of this AGREEMENT and/or the SPONSOR's performance or failure to perform any aspect of the AGREEMENT. Provided, however, that nothing herein shall require the SPONSOR to hold harmless or defend the COUNTY from any claim arising from the sole negligence of the COUNTY's agents, employees and/or officers.

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18. In the event that any PARTY to this AGREEMENT deems it necessary to institute legal action or proceedings to enforce any right or obligation under this AGREEMENT, the PARTIES hereto agree that any such action or proceeding shall be brought in a court of competent jurisdiction situated in Spokane County, Washington.
19. In the event that any portion of this AGREEMENT may be held to be invalid by a court of competent jurisdiction, all other portions of this AGREEMENT not held to be invalid shall remain in full force and effect, and the AGREEMENT shall be modified accordingly to the mutual satisfaction of the PARTIES.

IN WITNESS THEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

(Select the signature block(s) as appropriate)

SPONSOR:

- (1) For an acknowledgement in an individual capacity

(NAME)

State of Washington)
)ss
County of Spokane)

I certify that I know or have satisfactory evidence that (name of person) is the person who appeared before me, and said person acknowledged that (he/she) signed this instrument and acknowledged it to be (his/her) free and voluntary act for the uses and purposes mentioned in the instrument.

Dated _____

Notary Public in and
for the State of Washington.
My Appointment Expires: _____

- (2) For an acknowledgment in a representative capacity:

CORPORATION NAME

A Washington Corporation

By: (NAME)
Its: (TITLE)

State of Washington)
)ss
County of Spokane)

Dated _____

SPOKANE COUNTY DIVISION OF ENGINEERING

By _____
Title: **Spokane County Engineer**
Date: _____

SPOKANE COUNTY DIVISION OF UTILITIES

By _____
 Title: **Spokane County Utilities Director**
 Date: _____

TECHNICAL REFERENCE D

Performance Surety Reduction

Surety Reduction Examples:

$$\text{Total aggregated reduction} = 90\% \times (\text{Total Surety} - \text{Retainer})$$

Example #1: Total Surety = \$100,000.

Retainer = 10 % x \$100,000

= \$10,000 as cash savings assignment or

Letter of Credit;

\$90,000 as cash savings assignment, Letter
of Credit or Bond from a Bonding Company .

Total of reductions = 90% x (100,000 – 10,000)

= 90% x (90,000)

= \$81,000

*(The remaining \$19,000 is less than the \$20,000 (or 20%) minimum noted
in Section 10)*

At least \$20,000 (\$10,000 retainer + \$10,000 other instrument) will be
held until the County Engineer accepts the construction certification

Example #2: Total Surety = \$50,000.

Retainer = \$7500 (which is greater than 10 % x

\$50,000)

= \$7500 as cash savings assignment or Letter
of Credit;

\$42,500 as cash savings assignment, Letter
of Credit or Bond from a Bonding Company.

Total of reductions = 90% x (50,000 – 7500)

= 90% x (42,500)

= \$38,250.

*(The remaining \$11,750 is more than the 20% minimum, but less than the
\$20,000 minimum)*

At least \$20,000 (\$7500 retainer + \$12,500 other instrument) will be held
until the County Engineer accepts the construction certification

Note: Partial reductions on Bonding Company Surety Instruments will not be
allowed. Reductions in cash security will be considered only for projects which, in
the County Engineer's opinion, are making steady progress, and for which the
plan acceptance has not expired.

GENERAL PROVISIONS

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GENERAL PROVISIONS

Besides the requirements contained in the Washington State Department of Transportation Standard Specifications, the following General Provisions will be used on all projects, private or public, constructed within Spokane County. These provisions represent additions and/or changes to the Standard Specifications and govern over the Standard Specifications.

DIVISION 1

1-01.3 DEFINITIONS

Section 1-01.3 shall be revised as follows:

State shall mean the County of Spokane, Washington a political subdivision, acting through its authorized representatives.

Commission or Washington State Transportation Commission shall mean the Board of County Commissioners of Spokane County, an elected body having authority over County matters as provided by law. All references to Commission in the Standard Specifications shall conform to this definition.

Department, or Department of Transportation shall mean the Spokane County Engineer or his authorized representative.

Secretary or Secretary of Transportation shall mean the Spokane County Engineer or his authorized representatives.

Engineer or Project Engineer shall mean the Spokane County Engineer or his/her authorized representative.

DIVISION 2

2-03.3(14)C COMPACTING EARTH EMBANKMENTS

Method B. Change 90 percent maximum density to 92 percent.

2-03.3(14)D COMPACTION AND MOISTURE CONTROL TESTS

Delete these provisions and substitute the following provision:

Maximum density and optimum moisture will be determined using the AASHTO T-180-90, with Method A or D as appropriate; and AASHTO T-224-90, with the following modifications:

1. AASHTO T-180-90

- a. Notice 8 (Method D). Rock will not be replaced with soil as part of the laboratory determination for maximum dry density and optimum moisture content.
- b. Oven drying or direct heating will be the only acceptable methods of moisture content determination.
- c. Oven drying to dry back saturated or very wet soils, at temperatures above 140 degrees F. will be permitted only with frequent mixing.

2. AASHTO T-224-90

- a. Specific gravity for rock will be determined in the laboratory. The fraction of 3/4 inch material in the backfill may be determined in the field by sieving the sample in a wet or moist condition.

In-place density will be determined utilizing AASHTO T-238-86.

In-place moisture content will be determined utilizing AASHTO T-239-90.

The Contractor shall provide a safe environment for the compaction control test to be performed. This may include temporarily stopping the backfill operation such as the conveyor belt, backhoe, roller, etc. long enough for the safe completion of the test.

DIVISION 3

DIVISION 4

4-04.3(5) SHAPING AND COMPACTION

The first sentence of the first paragraph in Section 4-04.3(5) is replaced by the following:

Immediately following spreading and final shaping, each layer of surfacing shall be compacted to at least 95 percent of the density determined using the AASHTO T-180-90, with Method A or D as appropriate: and ASSHTO T-224-90 with the following modifications:

1. AASHTO T-180-90

- a. Notice 8 (Method D). Rock will not be replaced with soil as part of the laboratory determination for maximum dry density and optimum moisture content.
- b. Oven drying or direct heating will be the only acceptable methods of moisture content determination.
- c. Oven drying to dry back saturated or very wet soils, at temperatures above 140 degrees F. will be permitted only with frequent mixing.

2. AASHTO T-224-90

- a. Specific gravity for rock will be determined in laboratory. The fraction of 3/4 inch material in the backfill may be determined in the field by sieving the sample in a wet or moist condition.

In-place density will be determined utilizing AASHTO T-238-86.

In-place moisture content will be determined utilizing AASHTO T-239-90.

The Contractor shall provide a safe environment for the compaction control test to be

performed. This may include temporarily stopping the backfill operation such as the conveyor belt, backhoe, roller, etc. long enough for the safe completion of the test.

DIVISION 5

5-04.3(11) JOINTS

Section 5-04.3(11) shall be supplemented as follows:

JOINING EXISTING PAVEMENT

Where new pavement joins existing pavement, this joint shall be trimmed to a vertical face and to a neat line. New pavement shall be feathered at transverse joints as required to conform to the requirements of Section 5-04.3(13) for surface smoothness.

FEATHERING ASPHALT CONCRETE PAVEMENT

Where designated by the Engineer, the Contractor shall feather the asphalt concrete pavement overlay in a manner to produce a smooth riding connection to the existing pavement.

Asphalt concrete pavement Class 'A', utilized in the construction of the feathered connections to existing pavement, shall be modified by eliminating the coarse aggregate from the mix at the Contractor's plant or the commercial source from which the Contractor obtains the mix or by raking the joint on the roadway, to the satisfaction of the Engineer.

SC5-04a ASPHALT CONCRETE PAVEMENT

January 1, 1994

TRENCH REPAIR

Disturbance of an existing asphalt concrete pavement due to trench excavation of less than six feet in width shall be repaired by the Contractor as follows:

1. **Pavement Cutting:** The contractor shall cut the existing pavement along the trench edges with equipment approved by the Engineer. Immediately before placement of a patch, the existing pavement shall be cut with a saw along rectangular lines as shown on the plans or as directed by the Engineer. The pavement shall be removed to provide a firm, neat, straight, vertical edge. The Contractor shall be responsible for maintaining the edge.

Additional cuts with a saw will be required to correct broken or damaged edges.

2. Pavement shall be removed in an approved manner.
3. Trench depth shall provide 24 inches minimum cover over facility to be placed in the trench.
4. A tack coat of Grade CSS-1 or RC250 Asphalt shall be uniformly applied to all edges to be joined and lapping 6 inches over the existing pavement. The lines from the new asphalt pavement shall be raked over the tack coat, feathered and rolled or tamped to seal the joint. The structural section of the patch shall be equal to the section of the existing pavement. The thickness of asphaltic concrete shall not be less than 2 inches. Asphaltic concrete may be substituted for aggregate base if compacted layers do not exceed .25 feet with adequate compaction. Asphaltic concrete used for patching shall be Class A or B. It shall be furnished, placed and compacted in conformance with the standard specifications.

In inclement weather or as determined by the Engineer, trenches located within the traveled way shall be backfilled with 0.10 feet of asphalt concrete pavement over 0.5 feet of cement concrete, over an approved backfill material. Cement concrete shall contain 7.5 sacks per cubic yard of Type III cement. Additives may be added as approved by the Engineer to ensure opening of the road to traffic within 2 hours.

Repair of a trench over ten feet in width shall be made according to the standard specifications applying to new road construction. Road structural section materials and dimensions shall be determined by the County Engineer.

DIVISION 6

SC6-03 STEEL STRUCTURES

February 24, 1995

Section 6-03.3(30) shall be replaced with:

JACKING AND BORING

Spokane County Construction shall be notified (509) 456-3600 at least 48 hours in advance of the start of work.

All jacked or bored crossing will require casing.

Casings shall be equipped with grout nipples at the springline on both sides and at the crown. Maximum spacing between each set of nipples shall be 10 feet. Void spaces outside the casing shall be filled with grout mixture of 1 part Portland cement and 3 parts sand (by volume). Grouting shall start at the springline at one end and progress along the casing, alternating sides as grout appears in the grout hole at the crown. The grouting shall then proceed to the grout hole at the crown. Grouting shall be accomplished each day at the end of work for that day.

Steel casing pipe shall conform to AWWA C 200. Yield strength of casing pipe material shall be 35,000 psi minimum. Minimum wall thickness shall be 5/8 inch. The Contractor shall be responsible for selecting the gauge consistent with the over-burden requirements, his operation, and requirements of the permitter. Ends of steel casing per sections shall be beveled for field butt-welded joints in accordance with the requirements of AWWA C 206.

Casing installation through soil shall have a hole diameter that shall not exceed the outside diameter of the casing by more than 1-inch. Where unstable soil condition are found to exist, boring or tunneling operations shall be conducted in such a manner as not to be detrimental to the adjacent structures. If excessive voids or too large a bored hole results, prompt remedial measures shall be taken by the Contractor, subject to approval by the Engineer.

A minimum 6-inch thick concrete plug shall be poured at the ends of the casing. The concrete shall be worked around the pipe so that the plug will provide a tight seal.

Special care shall be taken during the installation of the pipe to ensure that no settlement of adjacent areas occurs. Any such settlement caused by the placement of the pipe shall be the Contractor's responsibility. The Contractor shall repair all areas so affected, as directed by the Engineer, at the Contractor's own expense.

DIVISION 7

SC7-04 STORM SEWERS

JANUARY 1, 1994

7-04.2 MATERIALS

Section 7-05.2 shall be supplemented as follows:

Polyvinyl Chloride Pipe conforming to the minimum requirements for ASTM 3033 or ASTM 3034 may be used as an alternate for concrete or metal pipe when used as connector pipes between drywells and catch basins or inlets where the maximum diameter is 15" and cover is 3 feet measured to the finished grade or as directed by the Engineer.

SC7-05 MANHOLES, INLETS, AND CATCH BASINS

JANUARY 1, 1994

7-05.1 DESCRIPTION

Section 7-05.1 shall be supplemented by the following:

All specifications in this section applying to precast concrete manholes shall also apply to precast concrete drywells.

7-05.2 MATERIALS

Section 7-05.2 shall be supplemented as follows:

"Special Backfill for Drywells" shall meet the requirements of section SC9-03.12(4)A

7-05.3 CONSTRUCTION REQUIREMENTS

Section 7-05.3 shall be supplemented as follows:

METAL FRAMES AND GRATES

Cement concrete or clay brick adjustment blocks shall be placed on grouted to provide the proper alignment and grade for the frame and grate. Any existing frame and grate that is removed and not reused shall be placed within the right-of-way where directed by the Engineer and shall remain the property of the County.

Where "Metal Frame Type 2" are to be constructed in existing curbs, the existing curb shall be sawcut and removed. The curb shall then be repoured around the cast iron hood.

DIVISION 8

SC8-04 CURBS, GUTTERS, AND SPILLWAYS

JANUARY 1, 1994

8-04.3 CONSTRUCTION REQUIREMENTS

Section 8-04.3 shall be supplemented as follows:

Cement Concrete Cross Gutters shall be constructed at locations shown on the plans in accordance with the standard specifications, these special provisions, and the standard plans.

8-04.3(1) CEMENT CONCRETE CURBS, GUTTERS, AND SPILLWAYS

Section 8-04.3(1) shall be supplemented as follows:

The curb and gutter shall be water tested by the Contractor in the presence of the Engineer and any irregularities causing water to stand shall be corrected by the Contractor at his expense. All costs incurred for the gutter water test shall be incidental to and included in the unit contract price for "Cement Concrete Curb, Type B"

8-04.3(2) EXTRUDED ASPHALT CONCRETE CURBS, AND GUTTERS

Section 8-04.3(2) shall be supplemented as follows:

Asphalt Concrete Curb, Type C shall be monolithically placed with the asphalt concrete

wearing surface.

DIVISION 9

9-03.12(4)A SPECIAL BACKFILL FOR DRYWELLS

Section 9-03.12(4) shall be supplemented as follows:

Special backfill for drywells shall consist of washed gravel conforming to the following gradation:

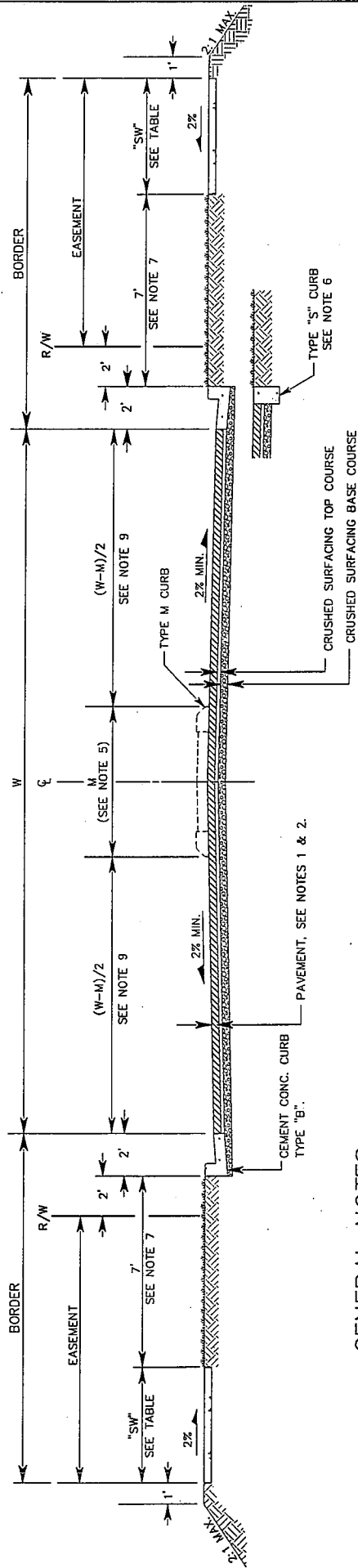
<u>Sieve</u>	<u>% Passing</u>
3"	100
1"	20
U.S. #200	5 max.

All percentages are by weight. A minimum of 90% of the aggregate, by weight, shall be unfractured, naturally occurring material.

STANDARD PLANS TABLE OF CONTENTS

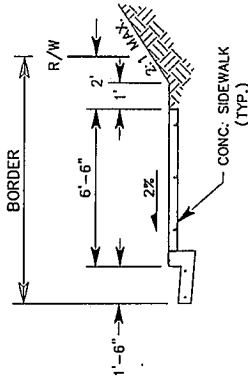
PLAN	TITLE	LAST DATE
A-1	Roadway Section - Curbed	11/1/00
A-2	Roadway Section - Shoulders	5/15/95
A-3	Curbs & Gutters	5/4/00
A-4	Urban Driveways - Separated Sidewalks	5/15/95
A-5	Curb Ramp	4/22/98
A-6	Traffic Island	4/22/98
A-7	Cement Concrete Approaches	4/22/98
A-8	Rural Road Approaches	4/22/98
A-8a	Rural Driveway Approaches	5/29/98
A-9	Bike Ways & Pedestrian Paths	5/29/98
A-10	Cul-de-sacs - Public Roads	5/8/98
A-10a	Cul-de-sacs - Private Roads	4/22/98
A-11	Sidewalk Retaining Wall	5/15/95
A-12	Retaining Wall	5/15/95
A-13	Entrance Steps to Abutting Properties	5/15/95
A-14	Monument Case & Cover	4/22/98
A-15	Utility Locations - Curbed Road	11/1/00
A-15A	Utility Locations - Shouldered Road	11/1/00
A-16	Street Name Signs	11/1/00
A-17	Symbols	5/15/95
A-18	Roadway Construction Payment Limits	2/23/99
B-1	Precast Drywells	5/15/95
B-1a	Precast Drywells Placed in Swales	4/22/98
B-2	Precast Drywell Details	5/15/95
B-3	Precast Drywell & Inlet Details	5/29/98
B-4	Catch Basin Type 1	5/8/98
B-5	Concrete Inlet Type 1	5/15/95
B-6	Concrete Inlet Type 2	5/15/95
B-7	Catch Basin & Inlet Installation	5/15/95
B-8	Curb Inlet Type 1	4/22/98
B-9	Curb Inlet Type 2	5/8/98
B-10	Metal Frame, Type 1	5/15/95
B-11	Metal Frame, Type 2	5/15/95
B-12	Metal Grate, Type 1	5/15/95
B-13	Metal Grate, Type 2	5/15/95
B-14	Metal Grate, Type 3	5/15/95
B-15	Metal Frame, Grate & Solid Cover - Type 4	4/22/98
B-16	Metal Frame, Grate Type 5	5/15/95
B-16a	Concrete Slotted Cover w/Ring	4/22/98
B-17	Grate Guard	5/15/95
B-18	Concrete Gutters	4/22/98
B-18a	High Volume Driveway Approach	5/15/95
B-19	Inlet Installations	4/22/98
B-20	Swale with Modular Block Wall	4/22/98

PLAN	TITLE	LAST DATE
U-1	Manhole Types & Depths	11/15/99
U-2	Manhole Type I-48	11/15/99
U-3	Manhole Type I-60	11/15/99
U-4	Manhole Type II-72, II-96	11/15/99
U-5	Manhole Type III-48	11/15/99
U-6	Manhole Type III-60, III-72, III-96	11/15/99
U-7	Manhole Type IV	11/15/99
U-8	Reducing Slabs & Manhole Step	11/15/99
U-9	Manhole Placement in Signalized Intersection	11/15/99
U-10A	Sanitary Sewer Manhole Exterior Drop Connection	11/15/99
U-10B	Sanitary Sewer Manhole Interior Drop Connection	11/15/99
U-11	Typical Channel Detail	11/15/99
U-12	Interior Drop Channels	11/15/99
U-13	Main Line Sewer Clean-Out with Cast Iron Ring & Cover	11/15/99
U-14	Manhole Ring and Cover	11/15/99
U-15	Standard Service Connection	11/15/99
U-16	Side Service Connection Record Drawings	11/15/99
U-17	Typical Pipe Casing Detail	11/15/99
U-18	Typical Pipe Casing Detail (Concrete)	11/15/99
U-19	Shallow Connection Detail	11/15/99
U-20	Manhole Invert Elevation Detail	11/15/99



GENERAL NOTES

1. PAVEMENT MAY BE ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE AS DETERMINED BY THE COUNTY ENGINEER.
2. PAVEMENT, CRUSHED SURFACING TOP COURSE AND CRUSHED SURFACING BASE COURSE THICKNESSES SHALL BE DETERMINED BY TRAFFIC LOADS AND SOIL VALUES.
3. DITCH SLOPES AND SIDE SLOPES SHALL BE NO STEEPER THAN RATIOS SHOWN UNLESS RECOMMENDED BY A SOILS REPORT AND APPROVED BY THE COUNTY ENGINEER.
4. EXCAVATION SLOPES HIGHER THAN 8' SHALL BE DETERMINED BY SOILS TESTING.
5. "W" SHALL BE SHOWN ON CONSTRUCTION PLANS.
6. WHERE LEFT-TURN LANES ARE REQUIRED, $M=12'$ WHEN MEDIAN IS PAINTED. WHEN RAISED MEDIAN WITH TYPE M CURB USED $M=14'$ OTHERWISE $M=0$
7. SHALL BE USED ONLY WHERE APPROVED BY THE COUNTY ENGINEER.
8. IF PLANTING STRIPS ARE USED AS A BIOFILTRATION SWALE, THE WIDTH SHALL BE 10' MIN.
9. REFER TO CLEAR ZONE SECTION FOR LOCATION OF RIGID OBJECTS.
10. WHEN RAISED MEDIANS ARE CONTINUOUS BETWEEN INTERSECTIONS, $(W-M)/2$ SHALL NOT BE LESS THAN 18 1/2 FEET.



CONTIGUOUS SIDEWALK
SEE NOTE 6

SIDEWALK

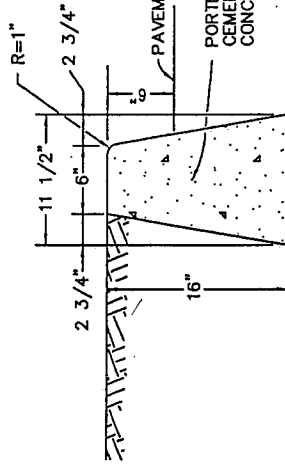
ROAD TYPE	"SW"
RESIDENTIAL ACCESS	5' MIN
OTHER	6' MIN



APPROVED:
COUNTY ENGINEER
DATE: 07/26/20

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99260 456-3600

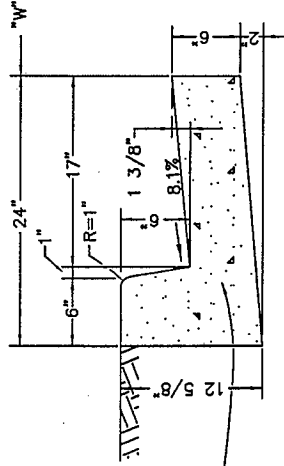
NO.	DATE	BY	CHKD.	APPR.	REVISION
4	11/00	CP	JS	W	AMENDED NOTE 5, ADDED NOTE 9
3	5/98	CP	JS	W	ADDED SIDEWALK TABLE
2	12/94	JB	JS	W	ADDED NOTES 7, 8, 9 & CONTIGUOUS SIDEWALK DETAIL
1	5/94	JB	JS	W	BORDER DIM & CHANGED NOTE 5 & EASEMENT WIDTH



TYPE "A"

QUANTITY = 0.036025 C.Y. / L.F.

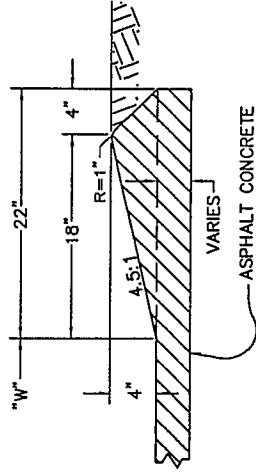
SEE NOTE 6



TYPE "B"

QUANTITY = 0.047657 C.Y. / L.F.

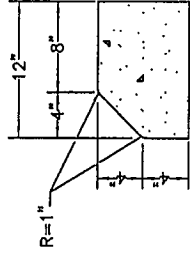
SEE NOTE 6



TYPE "C"

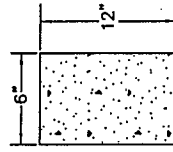
QUANTITY = 0.023123 TONS / L.F.

SEE NOTE 6



TYPE "M"

QUANTITY = 0.022633 C.Y. / L.F.

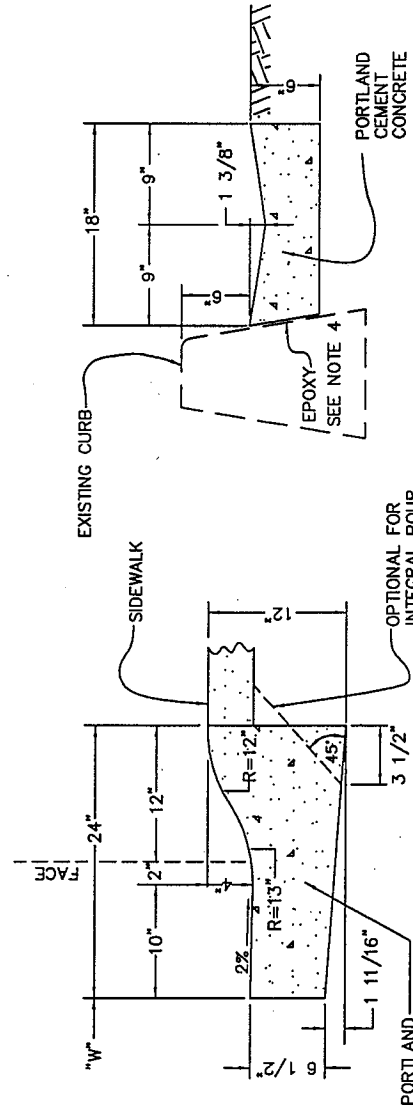


TYPE "S"

QUANTITY = 0.018519 C.Y. / L.F.

GENERAL NOTES

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000 CONFORMING TO THE STANDARD SPECIFICATIONS.
2. WEAKENED PLANE JOINTS FOR PORTLAND CEMENT CONCRETE SHALL BE PLACED AT 15' INTERVALS.
3. 3/8" EXPANSION JOINTS IN PORTLAND CEMENT CONCRETE SHALL BE PLACED AT CURB RETURNS.
4. EPOXY CEMENT SHALL BE APPLIED AT A 10-15 MIL THICKNESS AND SHALL CONFORM TO THE REQUIREMENTS OF SECTION 9-26 OF THE STANDARD SPECIFICATIONS.
5. THE FINISH SHALL BE STEEL TROWELLED TO PROVIDE A DENSE, SMOOTH REFLECTIVE FINISH.
6. TO BE USED ONLY IN SPECIAL CASES WITH APPROVAL OF THE COUNTY ENGINEER.
7. CURBS SHALL HAVE A LIGHT BROOMED FINISH. GUTTERS SHALL BE FINISHED WITH A STEEL TROWEL.

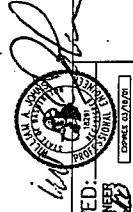


CONCRETE GUTTER

QUANTITY = 0.0244149 C.Y. / L.F.

TYPE "R"

QUANTITY = 0.052259 C.Y. / L.F.



SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99260

APPROVED:
COUNTY ENGINEER
DATE: 5/2/03

477-3600

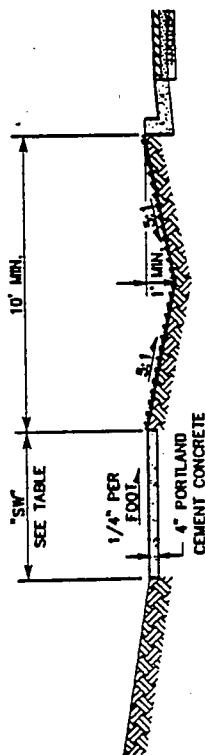
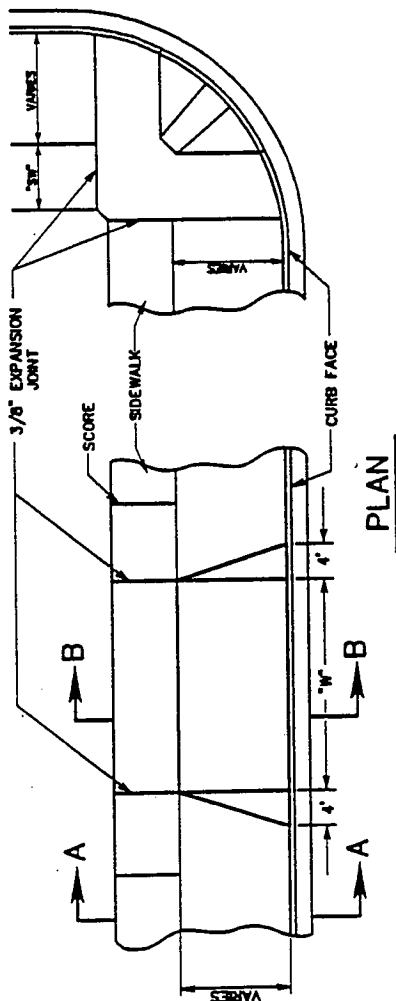
NO.	DATE	BY	CHK.	APP.	REVISION
3	5/00	OP	JSH	SDS	NOTE 5 AMENDED TO REMOVE TRINITY WHITE CEMENT
2	12/94	AB	CSN	RGH	"W" DIMENSION ADDED TO CURB SECTIONS.
1	1/93	AB	CSN	RGH	DIMENSION CORRECTION - TYPE "R" CURB

STANDARD
CURBS & GUTTERS

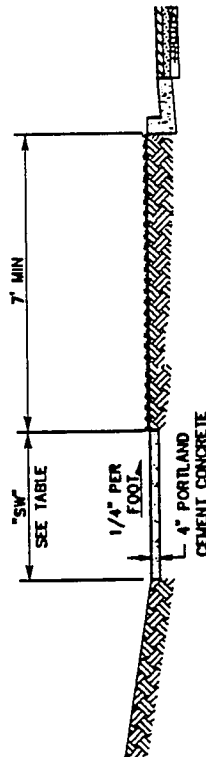
SHEET
A-3

GENERAL NOTES

1. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAYS OVER 20' IN WIDTH.
2. EXPANSION JOINT REQUIRED IF POUR INCLUDES ADDITIONAL DRIVEWAY AREA.
3. CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
4. ALL EXTERNAL EDGES TO BE TROWELLED WITH 1/4" RADIUS EDGER.
5. SIDEWALK TO BE SCORED EVERY 5'. 3/8" EXPANSION JOINT TO BE INSTALLED EACH SIDE OF A CURB RETURN AND AT LOCATIONS WHERE SIDEWALK INTERSECTS OTHER SIDEWALKS, DRIVEWAYS AND CURBS.
6. THE WIDTH OF COMMERCIAL DRIVEWAYS MAY BE WIDER THAN SHOWN, IF APPROVED BY THE COUNTY ENGINEER.
7. SEE SHEET A-5 (WHEEL CHAIR RAMPS)
8. SEE SHEET A-7 (CEMENT CONCRETE APPROACHES)



SECTION A-A
(DRAINAGE SWALE)



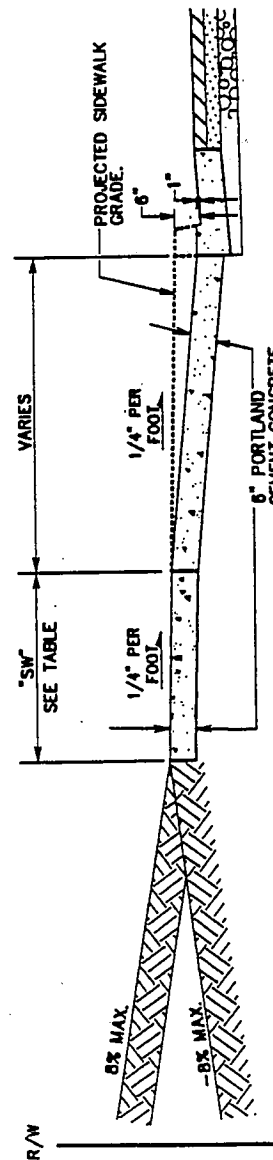
SECTION A-A
(PLANTER STRIP)

DIMENSION TABLE

DISTANCES	W	
	MIN.	MAX.
TYPE	MIN.	MAX.
COMM.	16'	40'
RES.	16'	30'

SIDEWALK

WIDTH'S	
ROAD TYPE	"SW"
RESIDENTIAL ACCESS	5' MIN
OTHER	6' MIN



SECTION B-B

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99208 534-3600

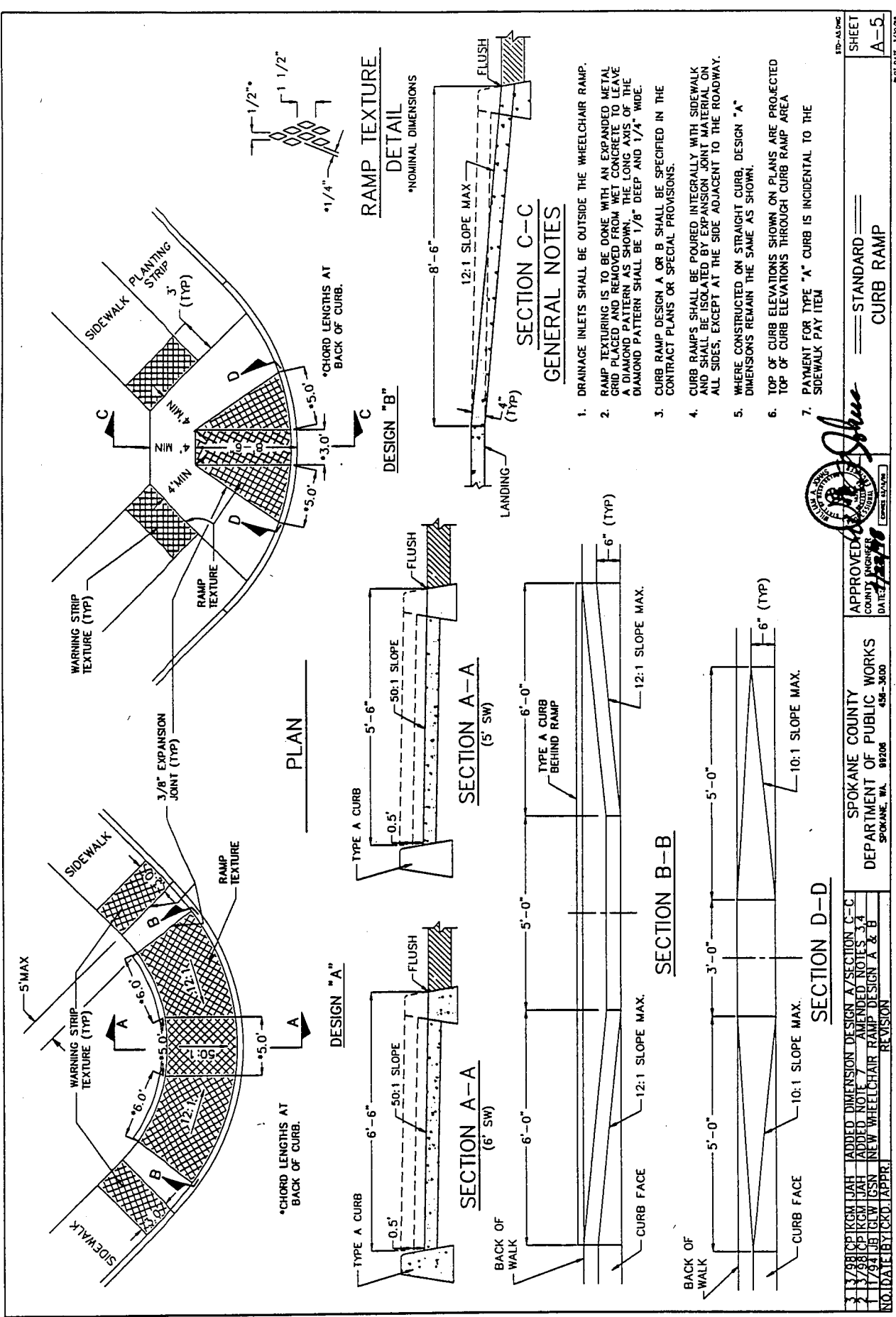
APPROVED
COUNTY ENGINEER
DATE 5-16-92



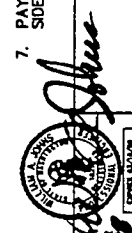
STANDARD
URBAN DRIVEWAYS - SEPARATED SIDEWALKS

SHEET
A-4

REVISION
REVISED SECTION B-B 7 NOTES 7 & 8
NO. DATE BY CHK. TAPER.

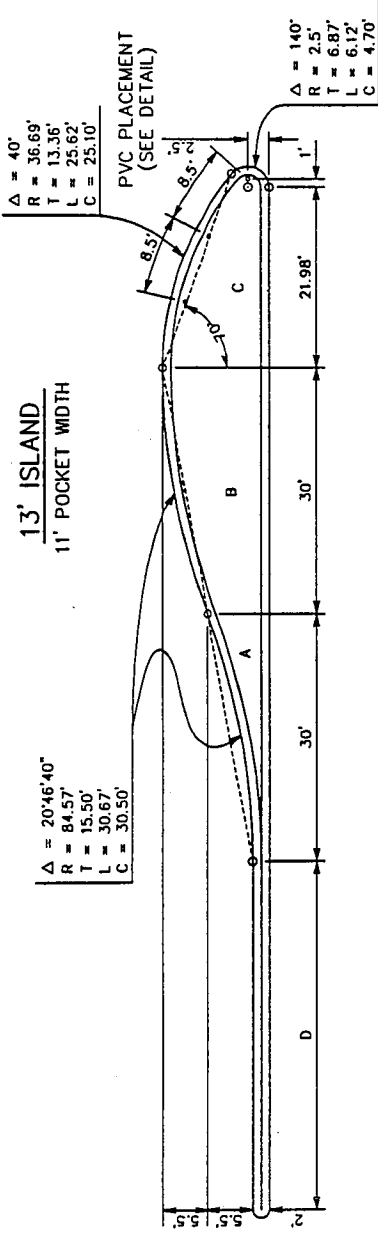


- ### GENERAL NOTES
1. DRAINAGE INLETS SHALL BE OUTSIDE THE WHEELCHAIR RAMP.
 2. RAMP TEXTURING IS TO BE DONE WITH AN EXPANDED METAL GRID PLACED AND REMOVED FROM WET CONCRETE TO LEAVE A DIAMOND PATTERN AS SHOWN. THE LONG AXIS OF THE DIAMOND PATTERN SHALL BE 1/8" DEEP AND 1/4" WIDE.
 3. CURB RAMP DESIGN A OR B SHALL BE SPECIFIED IN THE CONTRACT PLANS OR SPECIAL PROVISIONS.
 4. CURB RAMPS SHALL BE POURED INTEGRALLY WITH SIDEWALK AND SHALL BE ISOLATED BY EXPANSION JOINT MATERIAL ON ALL SIDES, EXCEPT AT THE SIDE ADJACENT TO THE ROADWAY.
 5. WHERE CONSTRUCTED ON STRAIGHT CURB, DESIGN "A" DIMENSIONS REMAIN THE SAME AS SHOWN.
 6. TOP OF CURB ELEVATIONS SHOWN ON PLANS ARE PROJECTED TOP OF CURB ELEVATIONS THROUGH CURB RAMP AREA.
 7. PAYMENT FOR TYPE "A" CURB IS INCIDENTAL TO THE SIDEWALK PAY ITEM



SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99206 456-3600		APPROVED COUNTY ENGINEER DATE: 1/20/94	STANDARD CURB RAMP	SHEET A-5
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SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99206 456-3600		APPROVED COUNTY ENGINEER DATE: 1/20/94	STANDARD CURB RAMP	SHEET A-5
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SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99206 456-				

13' ISLAND 11' POCKET WIDTH

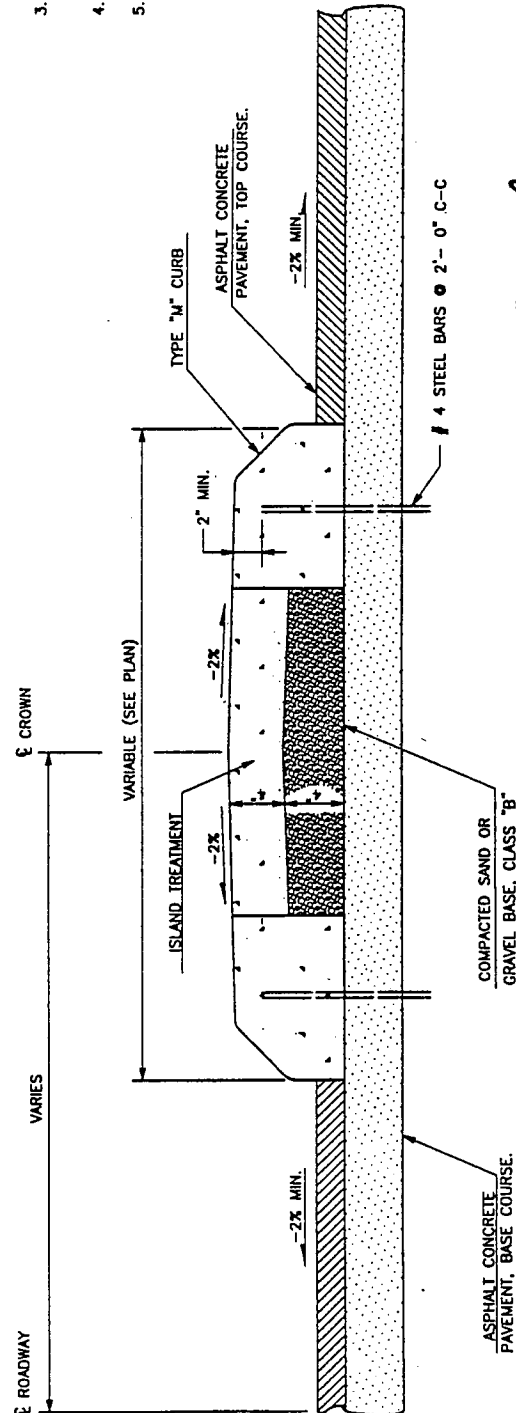
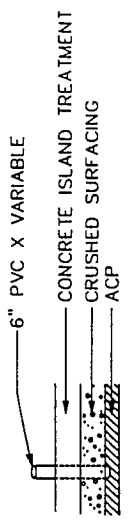


AREA TABLE		A	B	C	TOTAL
TOTAL AREA	FT ²	114.27	335.74	244.73	694.74
CURB AREA	FT ²	58.71	62.63	52.14	173.48
TREATMENT AREA	FT ²	55.56	273.11	192.59	521.26
CURB(OUTER EDGE)	L.F.	60.67	60.67	53.72	175.06

GENERAL NOTES

1. CONSTRUCTION OF ISLAND TREATMENT SHALL CONFORM TO SECTION B-04 OF THE STANDARD SPECIFICATIONS
2. EXPOSED CURB SURFACES SHALL BE STEEL TROWELLED TO PROVIDE A DENSE, SMOOTH, REFLECTIVE FINISH. THE CONCRETE SLAB SHALL HAVE A BROOMED FINISH.
3. ISLAND NOSSES SHALL BE DOWELED TO THE PAVEMENT IN AT LEAST TWO PLACES.
4. "D" SHALL BE SHOWN ON CONST. PLANS.
5. DEVIATION FROM THE STANDARD ISLAND DIMENSIONS MUST BE APPROVED BY THE TRAFFIC ENGINEER.

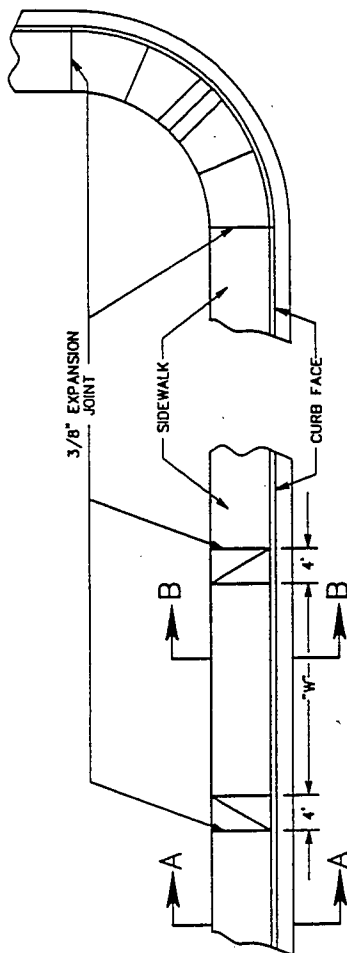
P.V.C. PLACEMENT DETAIL



SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99208		STANDARD TRAFFIC ISLAND		SHEET A-6	
APPROVED COUNTY ENGINEER DATE: 12/2/98		AMENDED NOTE 1 REVISION		NO. DATE BY CDR. JAPR.	

GENERAL NOTES

1. EXPANSION JOINT MATERIAL SHALL BE PLACED IN THE CENTER OF ALL DRIVEWAY APPROACHES OVER 20' IN WIDTH.
2. EXPANSION JOINT REQUIRED IF POUR INCLUDES ADDITIONAL DRIVEWAY AREA.
3. CONCRETE FOR DRIVEWAYS SHALL BE CLASS 3000 AIR ENTRAINED.
4. ALL EXTERNAL EDGES TO BE TROWELLED WITH 1/4" RADIUS EDGER.
5. SIDEWALK TO BE SCORED EVERY 5'.
6. THE COUNTY ENGINEER MAY REQUIRE A WIDER SIDEWALK THAN MINIMUM, WHERE PEDESTRIAN TRAFFIC VOLUMES INDICATE IT IS WARRANTED.
7. SEE SHEET A-5. (WHEEL CHAIR RAMPS)
8. CEMENT CONCRETE APPROACHES SHALL BE CONSTRUCTED AT ALL CURB DROP LOCATIONS TO INSURE STORMWATER FLOW ALONG GUTTER LINE REGARDLESS OF SIDEWALK CONSTRUCTION.



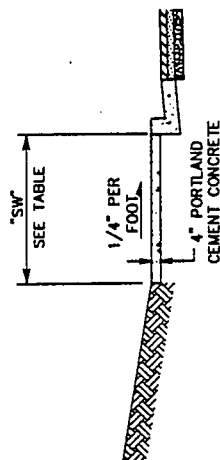
PLAN

DIMENSION TABLE

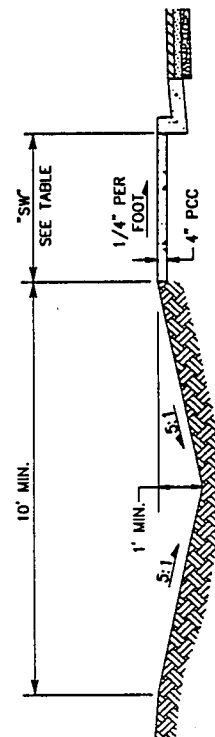
TYPE	DISTANCES "SW"	
	MIN.	MAX.
COMM.	16'	40'
RES.	16'	30'

SIDEWALK

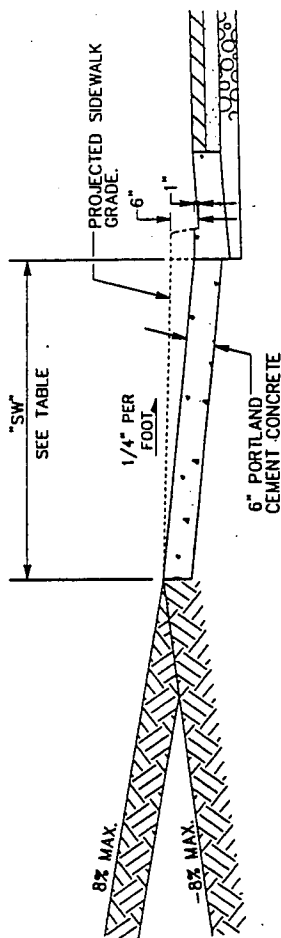
ROAD TYPE	"SW"
RESIDENTIAL ACCESS	5' MIN
OTHER	6' MIN



SECTION A-A



SECTION A-A
(DRAINAGE SWALE)



SECTION B-B

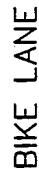
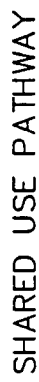
[Signature]
COUNTY ENGINEER
DATE 1/22/98

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99208 456-3000

NO.	DATE	BY	CHKD.	APPR.	REVISION
1	3/98	CP	KCM	USH	AMENDED NOTE 1
2	1/2/98	SB	CLW	RCH	REVISED SECTION B-B / NOTES 7 & 8

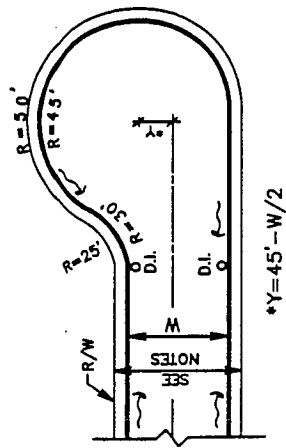
STANDARD
CEMENT CONCRETE APPROACHES

SHEET
A-7

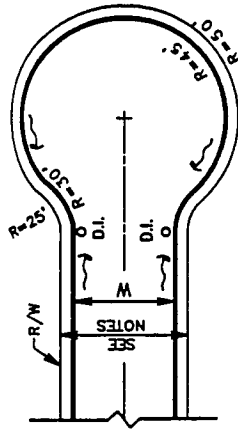


NOTE: SIGNING FOR BIKEWAYS SHALL BE CONSISTENT WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES

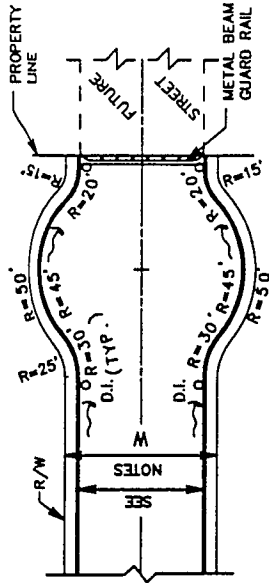
[illegible]



OFFSET CUL-DE-SAC



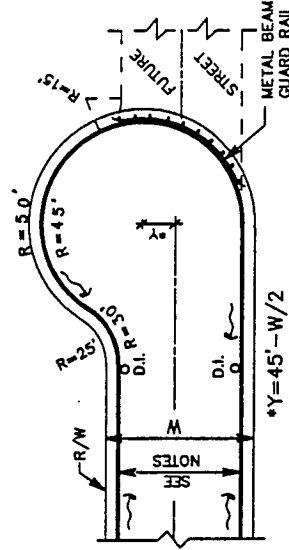
FULL CUL-DE-SAC



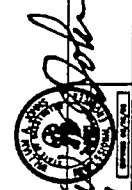
TEMPORARY FULL CUL-DE-SAC

GENERAL NOTES

1. THE DRAINAGE INLETS (D.I.) SHOWN ON THIS SHEET ARE REQUIRED ONLY WHEN THE STREET SLOPES TOWARD THE CUL-DE-SAC.
2. THE WIDTH OF RIGHT-OF-WAY AND THE CURB TO CURB STREET DIMENSIONS SHALL BE SPECIFIED BY THE COUNTY ENGINEERS OFFICE.
3. MINIMUM CURB GRADES ON CUL-DE-SACS SHALL BE 1%.
4. TEMPORARY CUL-DE-SAC WILL BE MARKED BY INSTALLATION OF GUARD RAIL OR OTHER PHYSICAL BARRIER AS APPROVED BY THE COUNTY ENGINEER WITH "END OF ROADWAY", SIGN W16-1.



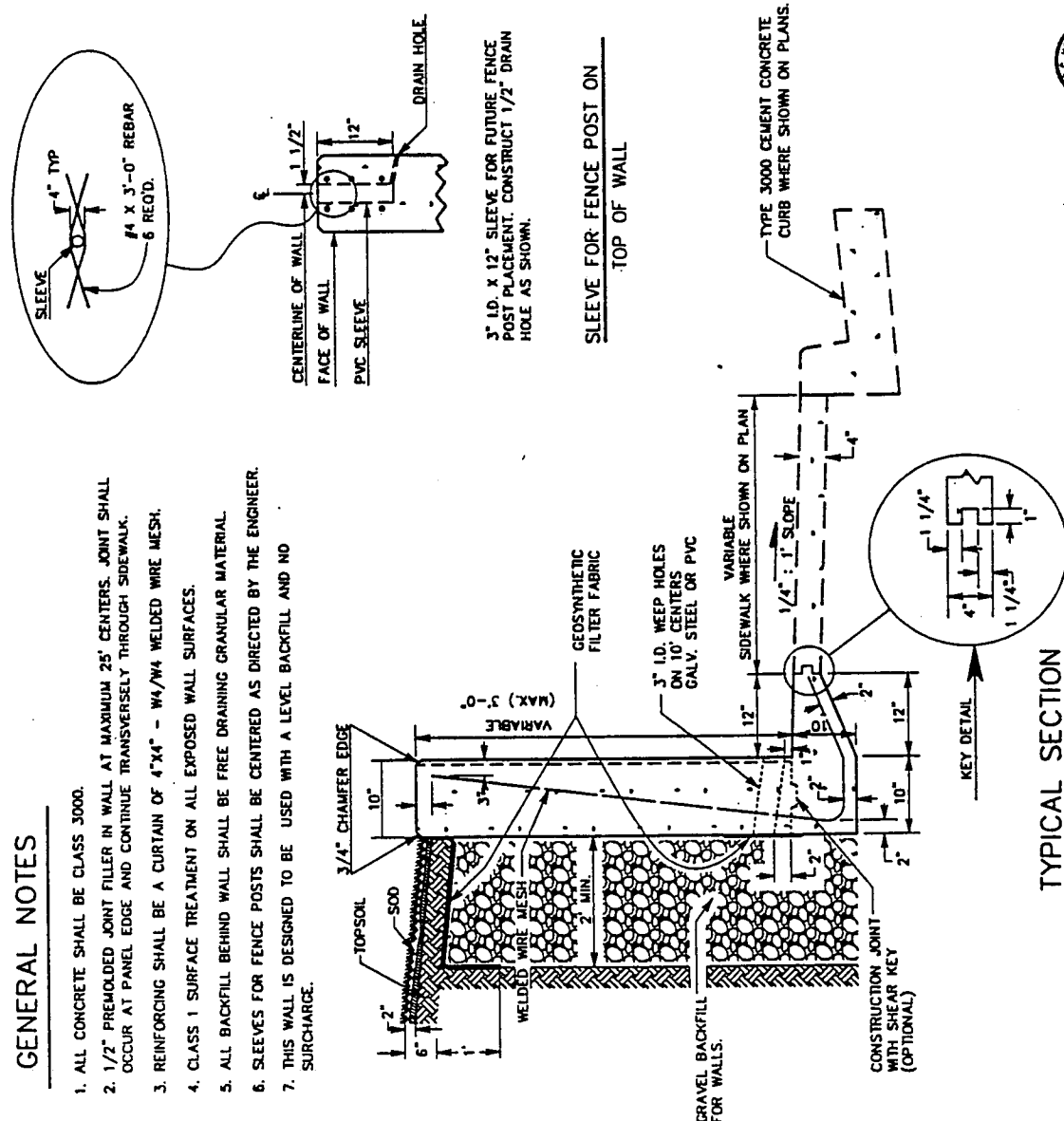
TEMPORARY OFFSET CUL-DE-SAC



SPOKANE COUNTY		STANDARD		CUL-DE-SACS-PUBLIC ROADS		SHEET A-10	
DEPARTMENT OF PUBLIC WORKS		DATE 3/1/78		APPROVED		BY [Signature]	
SPOKANE, WA 99208		COUNTY ENGINEER		DATE 3/1/78		BY [Signature]	
DRAWING TITLE		REVISION		DATE		BY	
1. E.A. CIPUSH W.A.		NO. DATE BY		1. 10/1/77 CIPUSH		2. 10/1/77 CIPUSH	

GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS 3000.
2. 1/2" PREMOLDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.
3. REINFORCING SHALL BE A CURTAIN OF 4"x4" - W4/W4 WELDED WIRE MESH.
4. CLASS 1 SURFACE TREATMENT ON ALL EXPOSED WALL SURFACES.
5. ALL BACKFILL BEHIND WALL SHALL BE FREE DRAINING GRANULAR MATERIAL.
6. SLEEVES FOR FENCE POSTS SHALL BE CENTERED AS DIRECTED BY THE ENGINEER.
7. THIS WALL IS DESIGNED TO BE USED WITH A LEVEL BACKFILL AND NO SURCHARGE.



ALTERNATE FACE TREATMENT TO BE CONSTRUCTED WHERE DESIGNATED IN SPECIAL PROVISIONS.

* ROUGH BOARD FORM-FINISHED SURFACE OF FLUSH PANEL IS TO SIMULATE THE GRAIN OF ROUGH BOARDS. USE FORM LINER.

TYPICAL SECTION



APPROVED: *[Signature]*
COUNTY ENGINEER
DATE: 5/25/88

SPokane County
DEPARTMENT OF PUBLIC WORKS
SPokane, WA 99208 434-3600

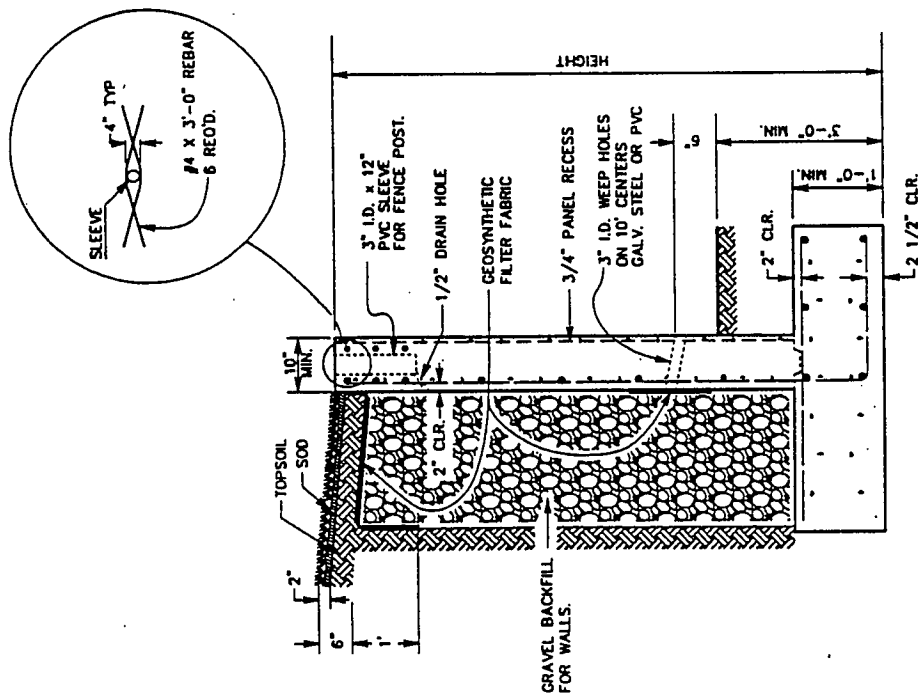
NOTE: 17. FILTER BLANKET & REBAR DETAIL
NO. DATE BY CHK. APPR. REVISION

SHEET
A-11

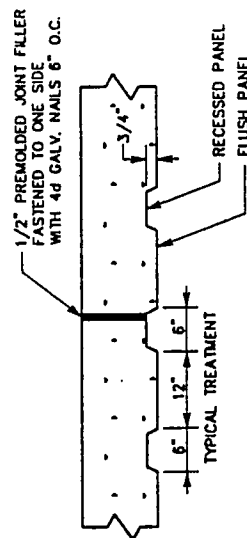
STANDARD
SIDEWALK RETAINING WALL

GENERAL NOTES

1. ALL CONCRETE CLASS 4000.
2. ALL EDGES TO BE 3/4" CHAMFER.
3. CONCRETE THICKNESS, STRUCTURAL DETAILS, SIZE AND NUMBER OF REINFORCEMENT SHALL BE DETERMINED BY ENGINEER.
4. 1/2" PREMOLDED JOINT FILLER IN WALL AT MAXIMUM 25' CENTERS. JOINT SHALL OCCUR AT PANEL EDGE AND CONTINUE TRANSVERSELY THROUGH SIDEWALK.



TYPICAL SECTION

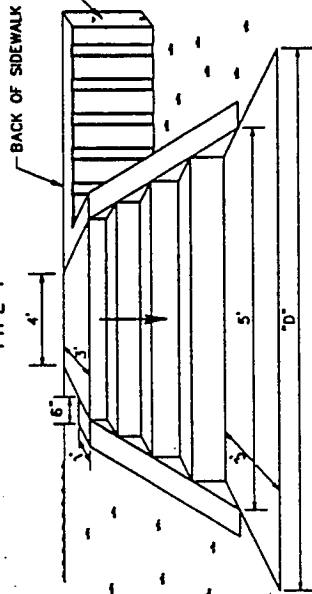


FACE TREATMENT ON WALL



APPROVED: <i>[Signature]</i>		COUNTY ENGINEER		DATE: 2-25-98		PROJECT: 171724	
SPOKANE COUNTY		DEPARTMENT OF PUBLIC WORKS		SPOKANE, WA 99208		458-3600	
NO. DATE BY CHKD. APPR.		REVISION		FILTER BALKNET & REBAR BENDING DETAIL		STANDARD ==	
1 6/94 J.B. GSN		RCH		RETAINING WALL		SHEET A-12	

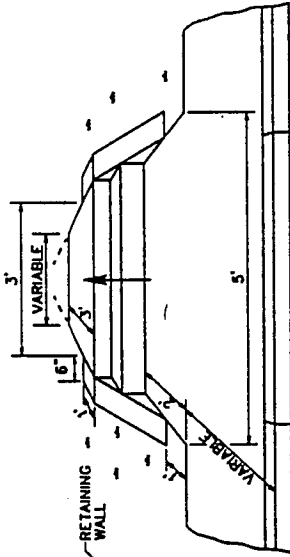
TYPE 1



ENTRANCE STEPS DOWN
WITH OR WITHOUT RETAINING WALL

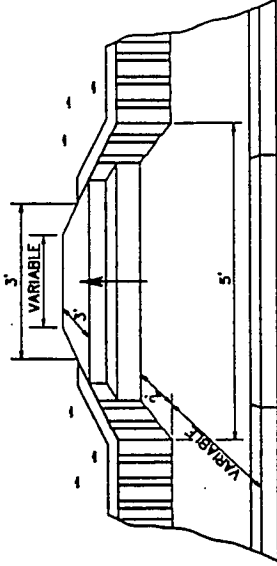
NOTE : WIDTH "0" THIS IS VARIABLE TO MEET
THE WIDTH OF THE ENTRANCE WALK TO
BE JOINED. IF NO WALK EXISTS THIS
WIDTH IS TO BE 5 FEET.

TYPE 2



ENTRANCE STEPS UP
WITH RETAINING WALL

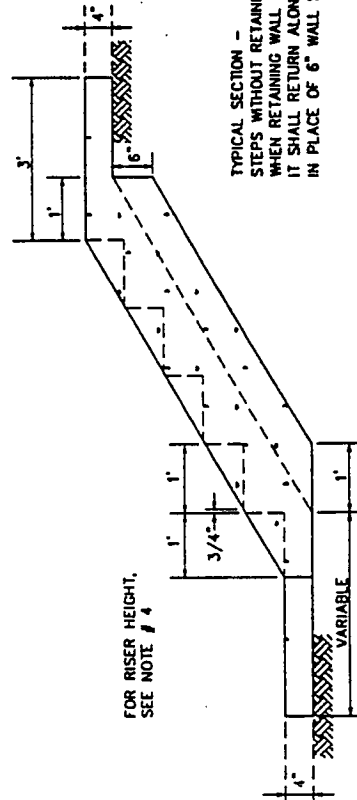
TYPE 3



ENTRANCE STEPS UP
WITH RETAINING WALL

GENERAL NOTES

1. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000 CONFORMING TO THE STANDARD SPECIFICATIONS.
2. ALL EXPOSED EDGES TO BE FINISHED WITH $3/4"$ RADIUS.
3. TREADS SHALL PITCH DOWN AND OUT $1/4"$ AND SHALL NOT TRAP WATER.
4. RISERS SHALL HAVE A MINIMUM $5"$ AND MAXIMUM $8"$ HEIGHT AND ALL SHALL BE EQUAL AT ANY ONE LOCATION.
5. NUMBER OF STEPS WILL VARY TO MEET THE GRADE OF PROPERTY BEING SERVED.
6. VARIATIONS IN DIMENSIONS MAY BE MADE ON SITE BY THE ENGINEER TO SATISFY PARTICULAR CONDITIONS.



TYPICAL SECTION -
STEPS WITHOUT RETAINING WALL.
WHEN RETAINING WALL IS CONSTRUCTED
IT SHALL RETURN ALONG SIDE OF STEPS
IN PLACE OF 6" WALL SHOWN.

FOR RISER HEIGHT,
SEE NOTE # 4



APPROVED: *[Signature]*
COUNTY ENGINEER
DATE: 3/22/23

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99208 458-3600

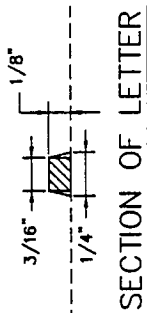
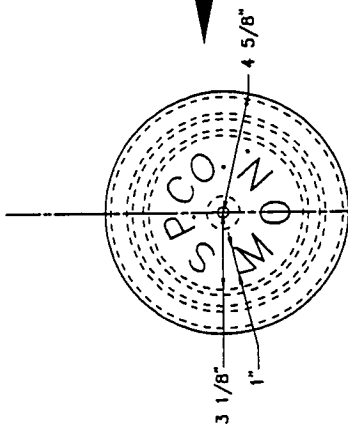
ENTRANCE STEPS TO ABUTTING PROPERTIES
STANDARD
SHEET
A-13

NO. DATE BY CKD: APPR. REVISION

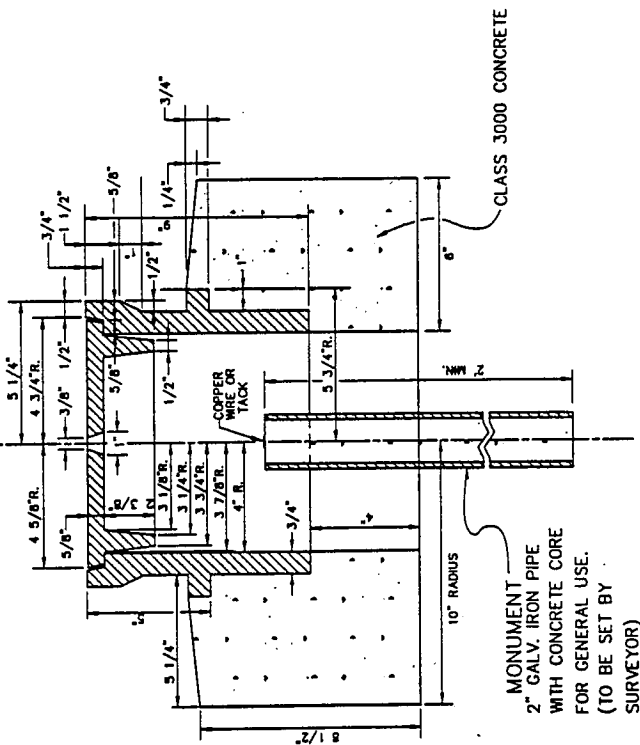
GENERAL NOTES

1. THE CASTINGS SHALL BE GREY IRON CASTINGS, AASHTO DESIGNATION M-105, CLASS 30B. THE COVER AND SEAT SHALL BE MACHINED SO AS TO HAVE CONTACT AROUND THE ENTIRE CIRCUMFERENCE AND FULL WIDTH OF BEARING SURFACE.
2. WHEN THE MONUMENT CASE AND COVER ARE PLACED IN CEMENT CONCRETE PAVEMENT THE CONCRETE BASE IS NOT NEEDED.
3. A RECORD OF REFERENCES TO SURVEY POINTS SHALL BE SUBMITTED TO THE COUNTY ENGINEERS OFFICE AS SHOWN ON SAMPLE.

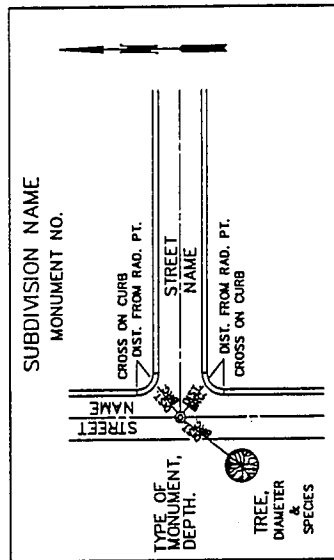
PLAN VIEW OF COVER



SECTION OF LETTER



SECTION



SAMPLE REFERENCE CARD



APPROVED:
COUNTY ENGINEER
DATE: 11/1/78

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99206 456-3600

AMENDED NOTE
REVISION

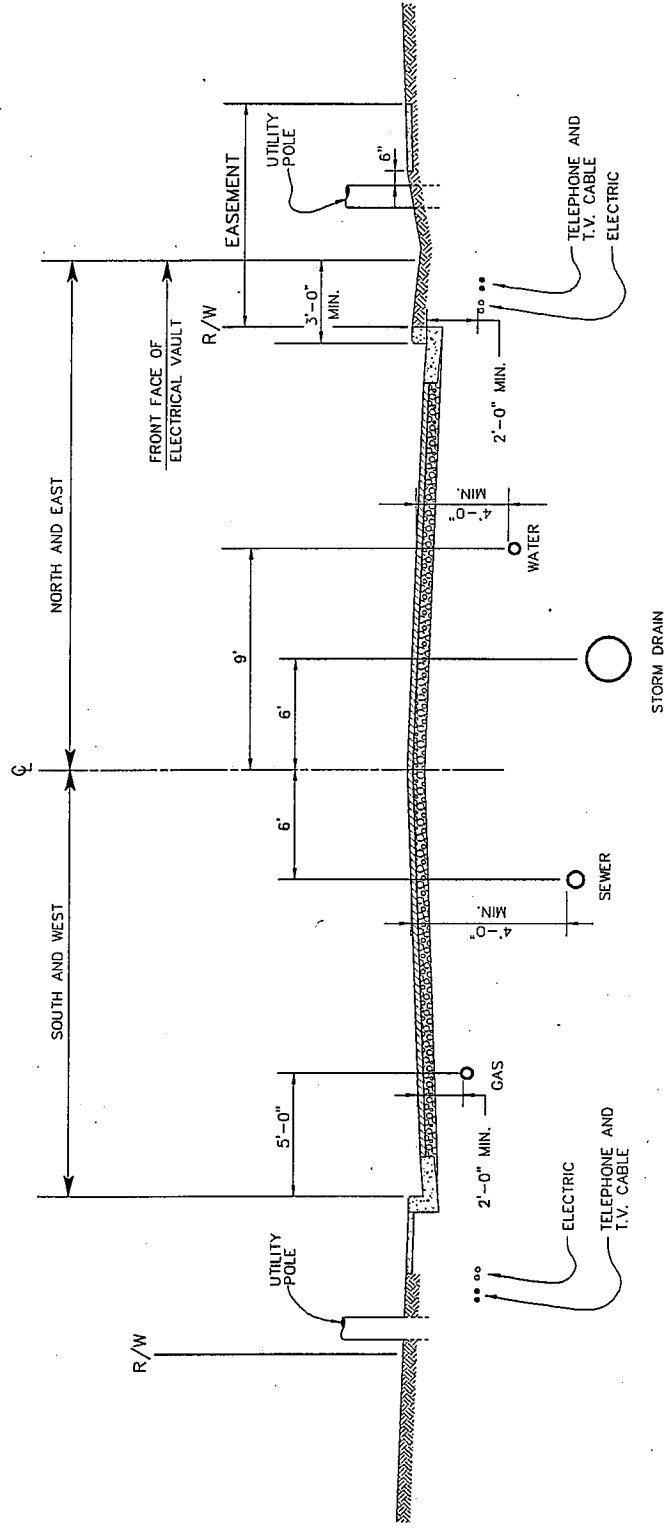
NO. DATE BY CKO. I APPR.

STANDARD
MONUMENT CASE & COVER

SHEET
A-14

GENERAL NOTES

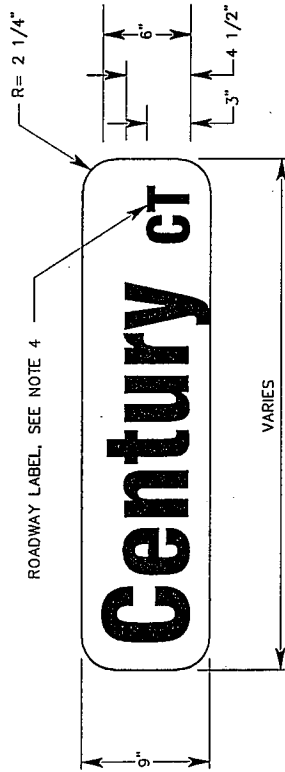
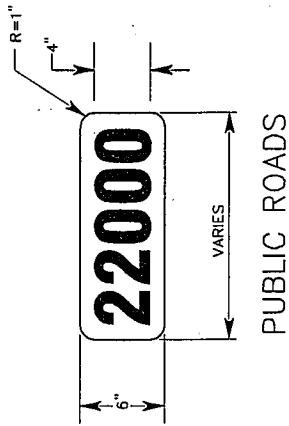
1. THIS PLAN SHOWS NORMAL LOCATIONS FOR ALL UTILITY INSTALLATIONS.
2. LOCATIONS OF EXISTING UTILITIES MUST BE FIELD LOCATED WITH THEIR RESPECTIVE OWNERS BEFORE MAKING NEW CONNECTIONS.
3. TELEPHONE PEDESTAL SHALL BE LOCATED JUST INSIDE R/W LINE.



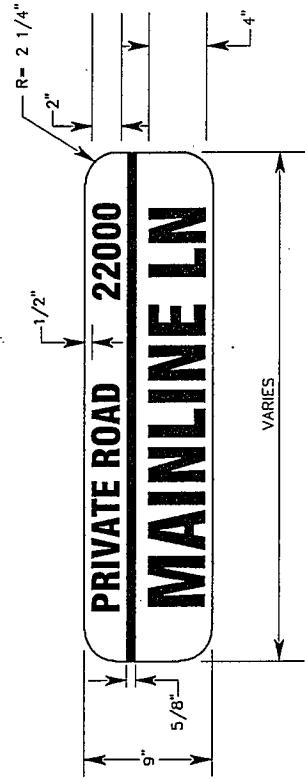
12/98/CP JSH WAJ		CHANGED TITLE TO CURBED ROAD		SPOKANE COUNTY		APPROVED: <i>[Signature]</i>		STANDARD		SHEET	
15/94/JR JSH RCH		R/W & UTILITY POLE LOCATION @ SWALE SIDE		DEPARTMENT OF PUBLIC WORKS		COUNTY ENGINEER		UTILITY LOCATIONS - CURBED ROAD		A-15	
NO DATE BY OKD APPR		REVISION		SPOKANE, WA 99280		DATE: <i>[Signature]</i>					

GENERAL NOTES

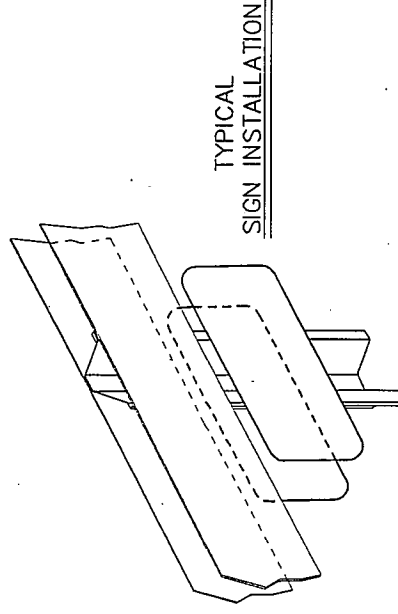
1. SIGNS SHALL MEET SPECIFICATIONS FOR FLAT PLATE ALUMINUM, 0.06" THICK, ALODINE 1200 OR EQUAL.
2. THE SIGN SURFACE SHALL BE WHITE LETTERS ON A GREEN BACKGROUND. WHITE LETTERS AND GREEN BACKGROUND SHALL BE ENGINEER GRADE RETROREFLECTIVE SHEETING.
3. LETTERS SHALL BE A BLOCK TYPE FONT.
4. THE ROADWAY LABEL MAY BE OMITTED FOR "STREET", "ROAD", AND "AVENUE". ALL OTHER ROADWAYS SHALL INCLUDE THE ABBREVIATED LABEL (I.E. - COURT - CT. DRIVE - DR. ETC.) ROADWAY LABEL SHALL BE UPPER CASE.
5. SIGN INSTALLATION SHALL CONFORM TO THE CURRENT EDITION OF THE M.U.T.C.D.



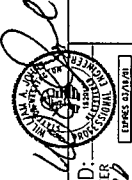
PUBLIC ROADS



PRIVATE ROADS



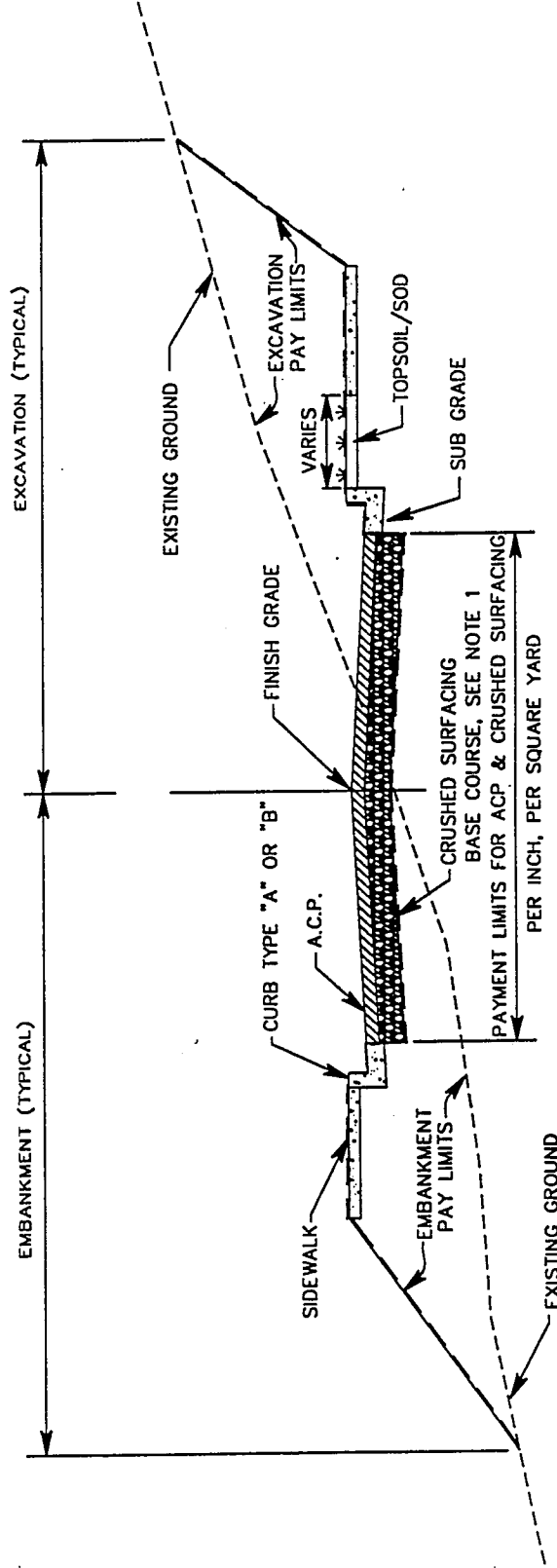
TYPICAL
SIGN INSTALLATION



APPROVED:
COUNTY ENGINEER
DATE: 11/1/00

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 477-3600

NO.	DATE	BY	CHKD	APPR.	REVISION
3	3/7/98	CPI	KGM	JSH	REDESIGN SIGNS
2	3/7/98	CPI	KGM	JSH	ELIMINATE RURAL DESIGNATION
1	3/7/98	CPI	KGM	JSH	AMEND NOTES 2, 3, 4 ADD NOTE 5



STANDARD BID ITEMS:

ASPHALT CONCRETE PAVEMENT CL. --- ' DEPTH, PER SQ. YD.
 CRUSHED SURFACING BASE COURSE- PER CUBIC YD.
 CRUSHED SURFACING TOP COURSE- PER CUBIC YD.
 CEMENT CONCRETE SIDEWALK, PER SQ. YD.
 CEMENT CONCRETE CURB TYPE ---, PER L.F.
 ROADWAY EXCAVATION INCL. HAUL, PER C.Y.
 EMBANKMENT COMPACTION, PER C.Y.
 TOPSOIL TYPE A, PER C.Y.
 SOD INSTALLATION, PER SQ. YD.

GENERAL NOTES

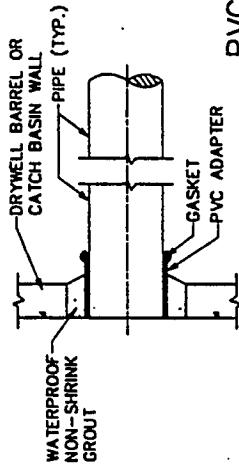
1. IF MEASURED BY C.Y. MEASUREMENT
 WILL BE MADE COMPACTED IN PLACE AS
 PER TYPICAL SECTION.

APPROVED: *[Signature]*
 COUNTY ENGINEER
 DATE: 12/2/99

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA 99260 477-3600		STANDARD	ROADWAY CONSTRUCTION PAYMENT LIMITS	SHEET A-18
NO. DATE BY CKD. APPR.	REVISION			

GENERAL NOTES

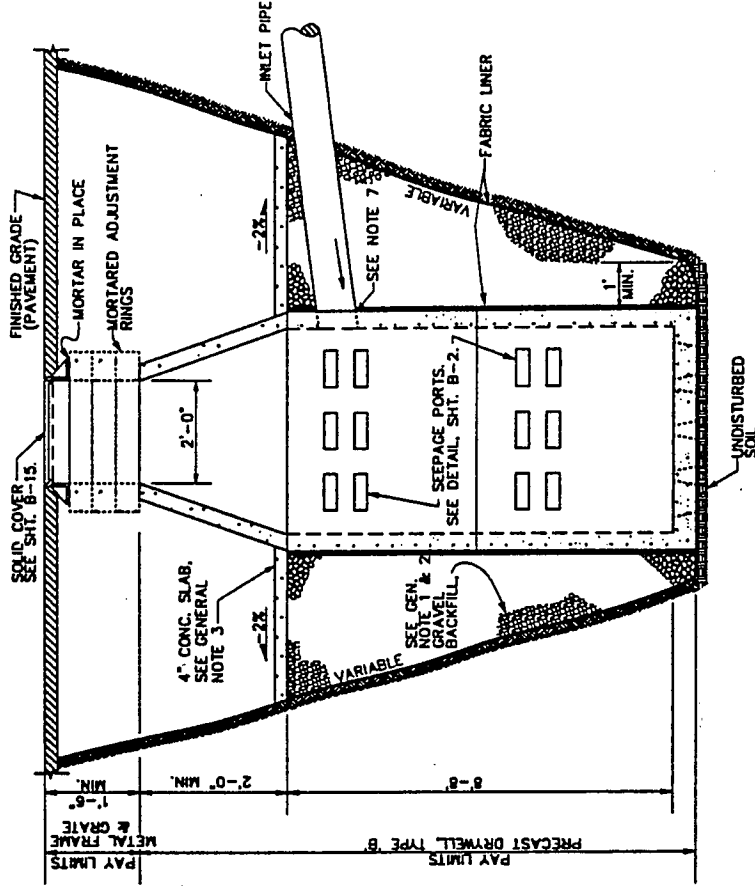
1. GRAVEL BACKFILL QUANTITY FOR DRYWELLS:
TYPE "A" - 30 CUBIC YARDS MINIMUM / 42 TONS.
TYPE "B" - 40 CUBIC YARDS MINIMUM / 56 TONS.
OR AS SPECIFIED ON ROAD PLANS.
2. SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT. A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.
3. CONCRETE SLAB SHALL BE CLASS 3000 CONCRETE.
4. SEE STANDARD PLANS SHEETS B-2 AND B-3 FOR PRECAST CONCRETE DETAILS.
5. ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.
6. PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.
7. WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.
8. PIPES SHALL BE GROUTED INTO DRYWELLS.



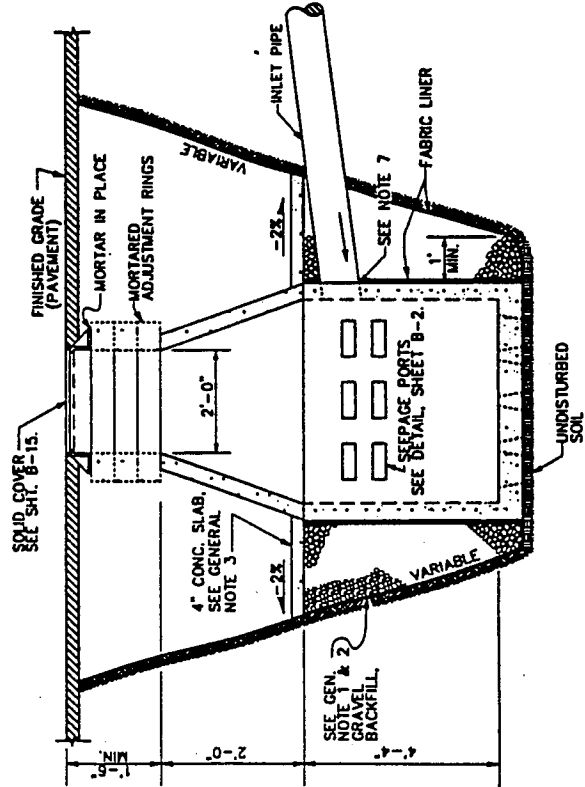
NOTE:

PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH A.S.T.M.-C-428.

PVC ADAPTER (SAND COLLAR)



DRYWELL - TYPE 'B'

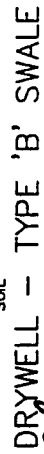
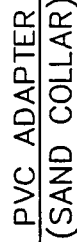


DRYWELL - TYPE 'A'

NO. DATE BY CHKD. APPR.		SPECIAL BACKFILL NOTE ADDED A 15/93 JB GSN RCH CHANGED GRAVEL BACKFILL QUANTITIES		REVISION	
A 19/93 JB GSN RCH		SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA 99208 456-3000		APPROVED COUNTY ENGINEER DATE: 5-16-98	
A 15/93 JB GSN RCH		STANDARD PRECAST DRYWELLS		SHEET B-1	

1. GRAVEL BACKFILL QUANTITY FOR DRYWELLS :
TYPE "A" - 30 CUBIC YARDS MINIMUM / 42 TONS.
TYPE "B" - 40 CUBIC YARDS MINIMUM / 56 TONS.
OR AS SPECIFIED ON ROAD PLANS.
2. SPECIAL BACKFILL MATERIAL FOR DRYWELLS SHALL CONSIST OF WASHED GRAVEL GRADED FROM 1" TO 3" WITH A MAXIMUM OF 5% PASSING THE U.S. No. 200 SCREEN, AS MEASURED BY WEIGHT. A MAXIMUM OF 10% OF THE AGGREGATE, AS MEASURED BY WEIGHT, MAY BE CRUSHED OR FRACTURED ROCK. THE REMAINING 90% SHALL BE NATURALLY OCCURRING UNFRACTURED MATERIAL.
3. FABRIC SHALL BE MODERATE SURVIVABILITY AS OUTLINED IN STANDARD SPECIFICATIONS 9-33
4. SEE STANDARD PLANS SHEETS B-2 AND B-3 FOR PRECAST CONCRETE DETAILS.
5. ADJUSTMENT BLOCKS SHALL BE CEMENT CONCRETE.
6. PRECAST RISER MAY BE USED IN COMBINATION WITH OR IN LIEU OF ADJUSTING BLOCKS.
7. WHEN PVC PIPE IS USED A PVC ADAPTER SHALL BE INSTALLED.
8. PIPES SHALL BE GROUTED INTO DRYWELLS.

PVC PIPE ADAPTERS AND GASKET MAY VARY IN SHAPE AND SIZE AS ILLUSTRATED IN DETAIL BY ACCEPTABLE ALTERNATE IN ACCORDANCE WITH A.S.T.M.-C-428.



DRYWELL - TYPE 'A' SWALE

**SPOKANE COUNTY
DEPARTMENT OF PUBLIC
SPOKANE, WA. 99208 456-**

APPROVED: 
COUNTY ENGINEER
DATE: 8/5/2014

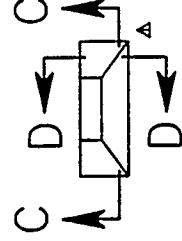
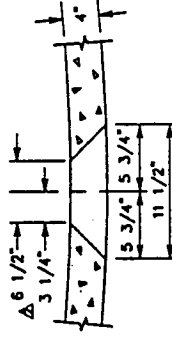
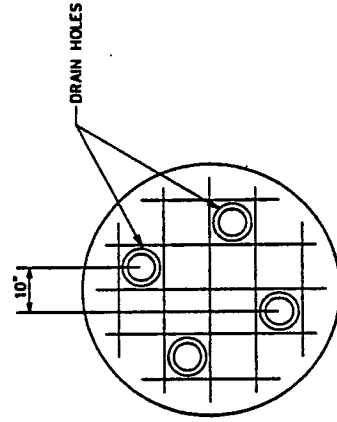
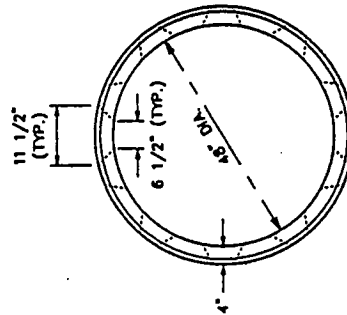
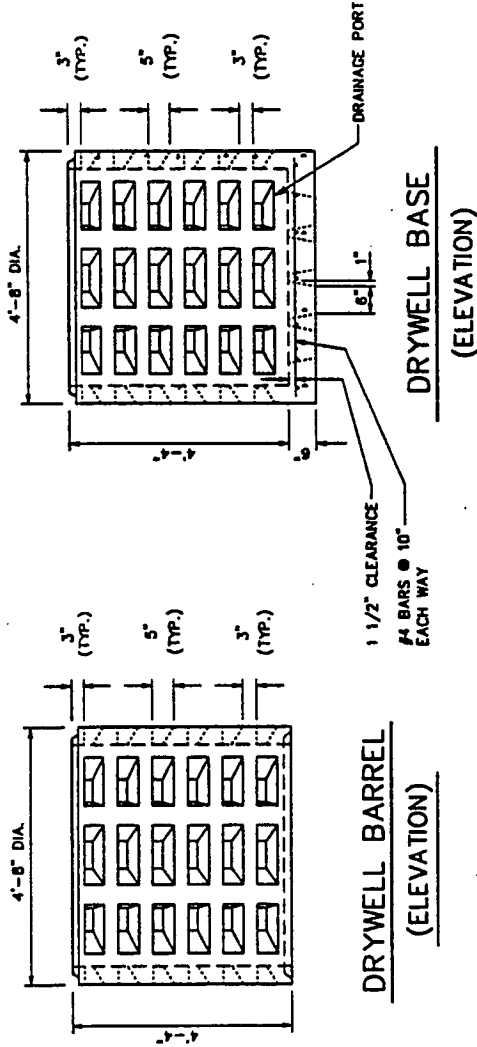
===== STANDARD =====

PRECAST DRYWELLS PLACED IN SWALES

STP-30-A-DWG
SHEET
B-1a

GENERAL NOTES

1. CONCRETE DRYWELL ITEMS SHALL BE CONSTRUCTED WITH THE BARRELS AND CONES REINFORCED WITH 0.12 SO. IN. STEEL GRADE 40, PER LINEAL FOOT OF WALL.
2. TOLERANCE OF DIMENSIONS FOR DRAINAGE PORTS SHALL BE $\pm 1/2$ ".
3. EACH BARREL SECTION SHALL A MINIMUM OF 6 ROWS OF DRAINAGE PORTS VERTICALLY AND A MINIMUM OF 10 DRAINAGE PORTS AROUND THE CIRCUMFERENCE OF THE BARREL.



DRYWELL BASE

DRYWELL BARREL

BASE DRAIN HOLE DETAIL

DRYWELL BARREL

DRYWELL BASE

APPROVED: 
COUNTY ENGINEER
DATE: 6-25-85

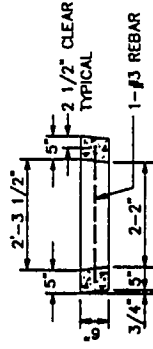
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99208 496-3000

NO. DATE BY CHKD. APPR. REVISION
A 8 3 18 CSW B.C.H. DRAINAGE PORT DIMENSION UPDATE
A 8 3 18 CSW B.C.H. DRAINAGE PORT DETAIL ORIENTATION
A 8 3 18 CSW B.C.H. DRAINAGE PORT DETAIL ORIENTATION

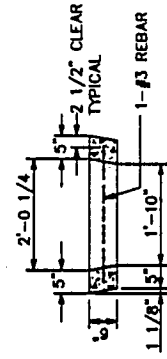
STANDARD
PRECAST DRYWELL DETAILS
SHEET
B-2

GENERAL NOTES

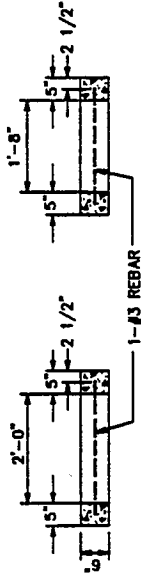
1. CONCRETE ITEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.



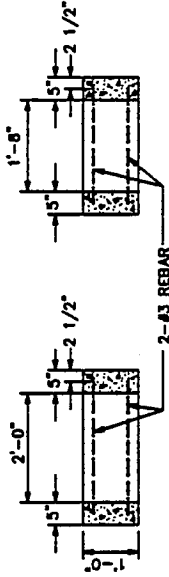
SECTION C-C



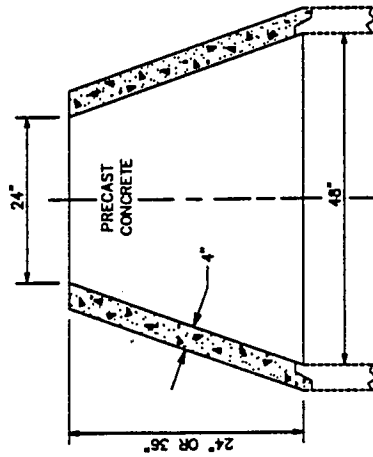
SECTION D-D



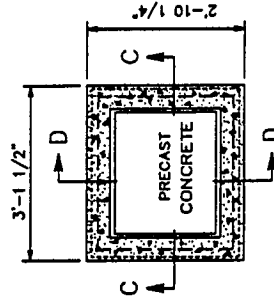
SECTION E-E



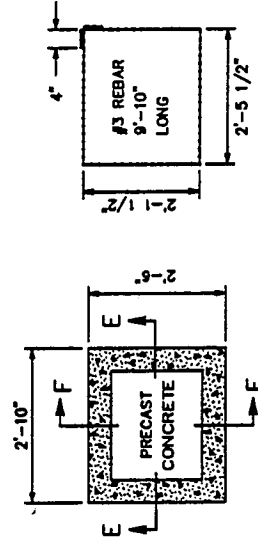
SECTION F-F



CONCENTRIC CONE



RISER, TYPE 2



RISER, TYPE 1

BENDING

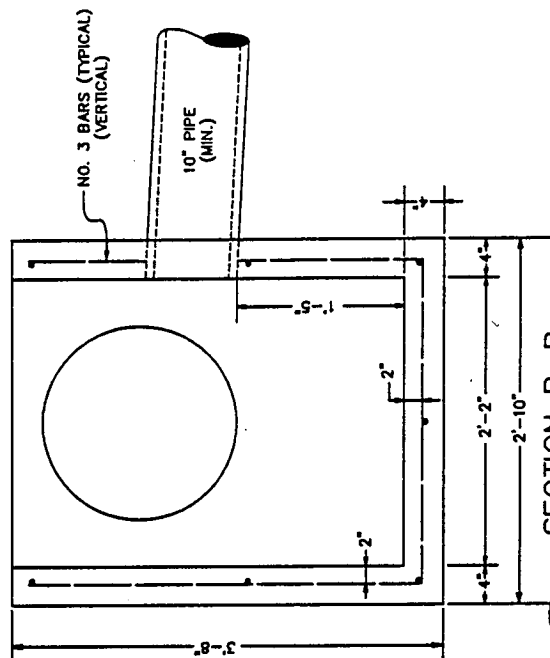
SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA 99208 458-3600		APPROVED COUNTY ENGINEER DATE: 10/1/98		STANDARD PRECAST DRYWELL & INLET DETAILS		SHEET B-3	
1. 4/98 CP/KGM JSH NO. DATE BY TICKET/APPR.		ERASED SECTION LABEL ON RISER, TYPE 1		REVISION			

Figure 1 is a plan view of a rectangular reinforced concrete slab. The overall dimensions are 2'-8" wide and 1'-10" deep. The slab contains a central rectangular area with a width of 2'-10" and a depth of 2'-2". The reinforcement is shown as solid lines with dots at the bar locations. The dimensions are labeled in feet and inches, with some dimensions in parentheses indicating specific bar spacing or offsets. Section lines A-A and B-B are indicated with arrows.

1. CATCH BASIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
3. PRECAST BASINS SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 20". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS CATCH BASIN WALL THICKNESS.
6. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
7. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2" / FT.
8. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATION. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT.
9. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
10. WHEN PVC PIPE IS USED, A PVC ADAPTER SHALL BE INSTALLED.
11. PVC ADAPTER SHALL BE GROUTED INTO CATCH BASIN.

Figure 1: Typical Reinforcement Detail for Slab Edge. The diagram shows a rectangular slab with a circular hole. The overall dimensions are 3'-8" wide and 2'-8" deep. The hole has a diameter of 1'-10". The reinforcement consists of 3 vertical bars (No. 3) and 3 horizontal bars (No. 3). The horizontal bars are spaced at 1'-5" (minimum) and 1'-10". The vertical bars are spaced at 2'-0" and 2'-0". The drawing includes dimensions in feet and inches, and a note indicating that the dimensions are in millimeters (MIN.).

SECTION A-A



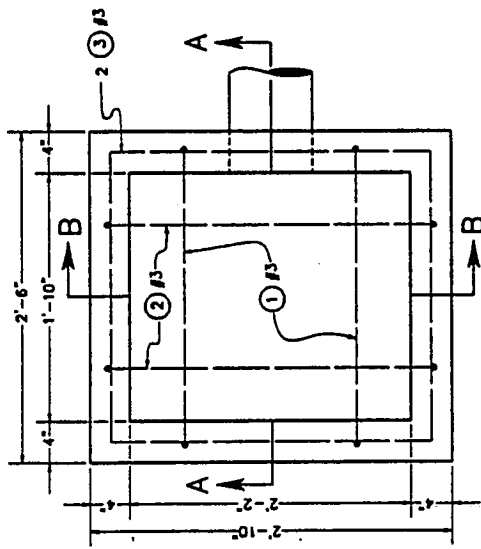
SECTION B-B

1	1/2" B.C.P. C.M.	JSH	10" DIMENSION FOR RADIUS OF OPENING
2	1/2" B.C.P. C.M.	JSH	CHANGED TITLE TO CATCH BASIN TYPE 1
3	1/2" B.C.P. C.M.	JSH	MAXIMUM DEPTH NOTE # 6
4	1/2" B.C.P. C.M.	JSH	REVISION
5	DATE BY CHK'D APPR.		

**SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS**
SPOKANE, WA 99208 456-3600

APPROVED:  **STANDARD**
COUNTY ENGINEER
CATCH BASIN TYPE 1
DATE: **5-8-88**
SHEET NO. **1**

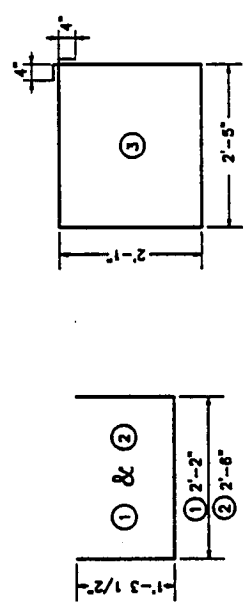
SHEET
B-4



PLAN

MARK	LOCATION	NO.	SIZE	LENGTH
①	BOTTOM SLAB & SIDEWALLS	2	3	4'-9"
②	BOTTOM SLAB & SIDEWALLS	2	3	5'-1"
③	SIDEWALLS	2	3	9'-8"

BAR LIST

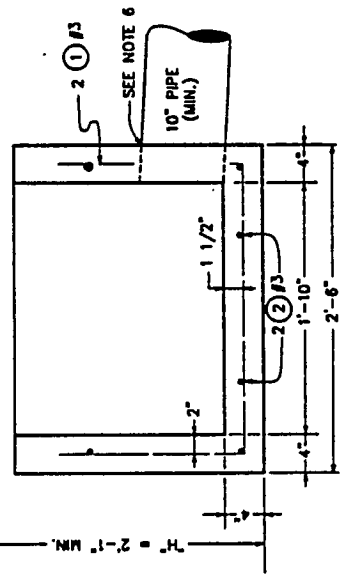


BENDING DIAGRAM

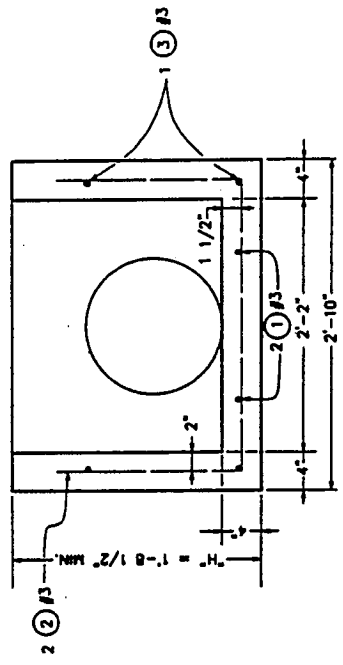
GENERAL NOTES

1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. REINFORCING STEEL SHALL BE GRADE 40 OR GRADE 60.
3. CONCRETE INLETS SHALL BE SET ON A COMPACTED OR UNDISTURBED LEVEL FOUNDATION.
4. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
5. "H" SHALL BE SHOWN ON CONSTRUCTION PLANS.
6. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED.
7. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET.
8. KNOCKOUTS SHALL BE ON ALL 4 SIDES WITH MAXIMUM DIAMETER OF 17". KNOCKOUTS SHALL BE ROUND. PIPE SHALL BE INSTALLED IN FACTORY SUPPLIED KNOCKOUTS.

TOP FRONT OF GRATE



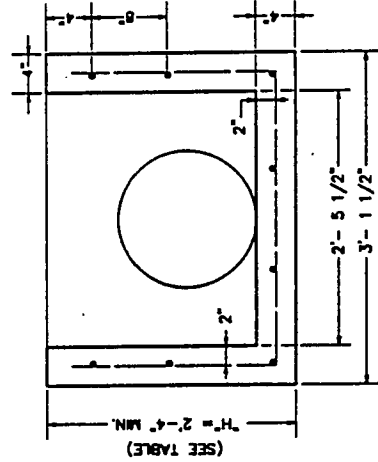
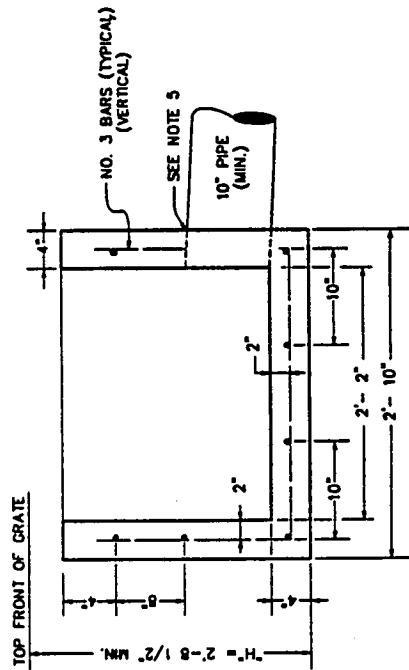
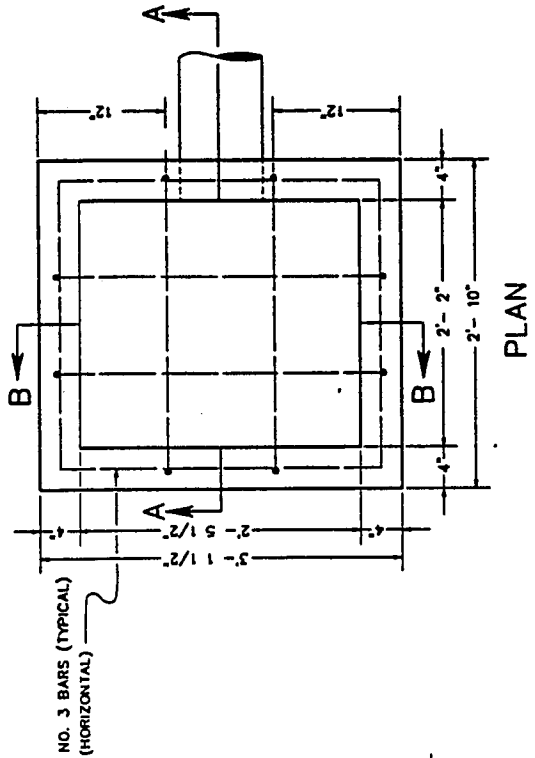
SECTION A-A



SECTION B-B

PRECAST UNIT

NO. DATE BY CKD/JAPP		REVISION		SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA 99208 494-3400		APPROVED:  COUNTY ENGINEER DATE: 5-25-20		STANDARD CONCRETE INLET TYPE 1		SHEET B-5	
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TABLE

PIPE DIAMETER	"H"
10"	2'-4"
12"	2'-5 1/2"
15"	2'-9"
18"	3'-0"
21"	3'-3"
24"	3'-6"

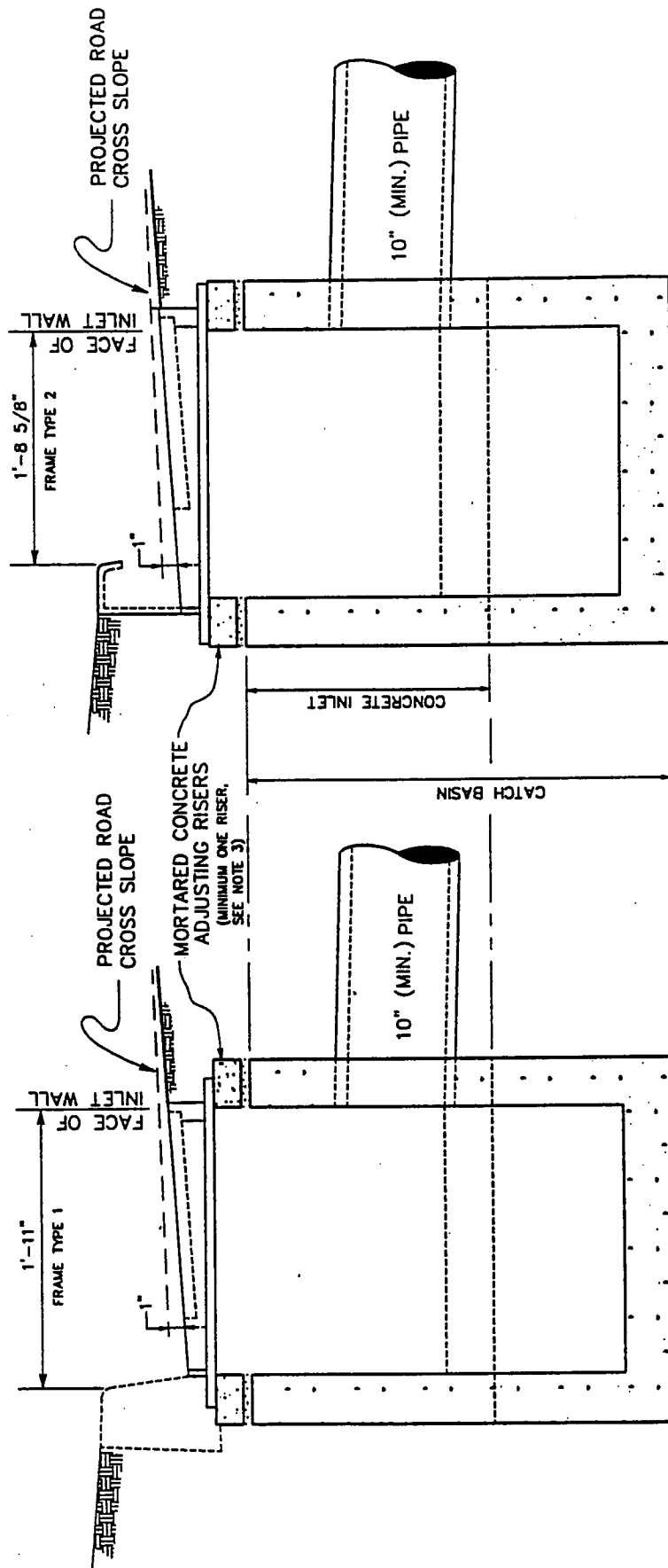
GENERAL NOTES

1. CONCRETE INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. CONCRETE INLETS SHALL BE SET ON A LEVEL, COMPACTED FOUNDATION.
3. AS AN ACCEPTABLE ALTERNATE TO REBAR, WELDED WIRE FABRIC HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A 497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN THE KNOCKOUTS.
4. "H" SHALL BE SHOWN ON CONSTRUCTION PLANS.
5. WHEN PVC PIPE IS USED, A SAND COLLAR SHALL BE INSTALLED.
6. INLET PIPE SHALL BE GROUTED INTO CONCRETE INLET.

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA 99208 494-3000		APPROVED DATE: 5/21/08	STANDARD CONCRETE INLET TYPE 2	SHEET B-6
NO. DATE BY CKO LAPP		REVISION		

GENERAL NOTES

1. THE TOP OF GRATE SHALL BE INSTALLED 1" LOWER THAN THE PROJECTED GUTTER GRADE.
2. THE PRECAST CONCRETE INLET SHALL BE PLACED ON THE SAME GRADE AS THE CURB.
3. RISER TYPE 2 TO BE USED WITH CATCH BASIN.



CATCH BASIN & INLET TYPE 1

CATCH BASIN & INLET TYPE 2



SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99206
454-3000

APPROVED
COUNTY ENGINEER
DATE: 5-26-25

REGISTERED
ENGINEER

STANDARD
CATCH BASIN & INLET INSTALLATION

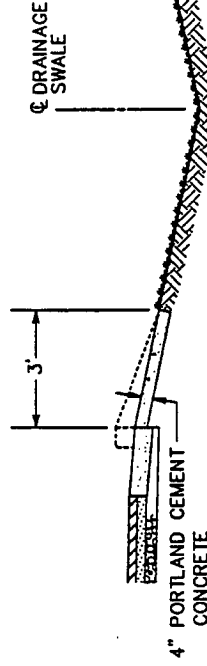
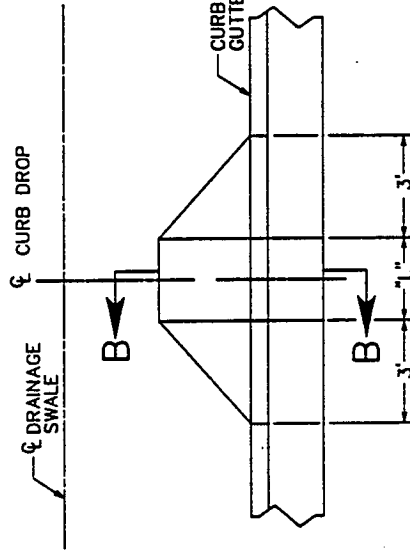
811-274C
SHEET
B-7

REVISION

NO. DATE BY CKD. APPR.

GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.
4. DIMENSION "L" SHALL BE SHOWN ON THE PLANS.



SECTION B-B

CURB INLET TYPE 1

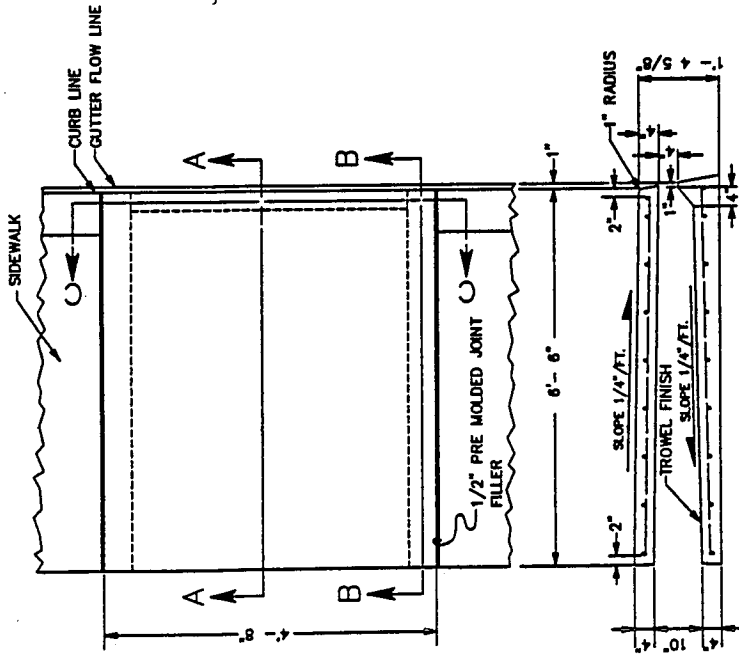
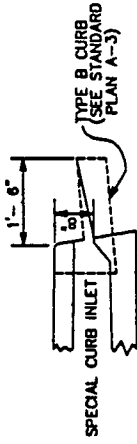


SPOKANE COUNTY		APPROVED: _____		STANDARD	
DEPARTMENT OF PUBLIC WORKS		COUNTY ENGINEER		CURB INLET TYPE 1	
SPOKANE, WA. 99208		DATE: 12/27/98		SHEET	
				B-8	

NO.	DATE	BY	CHKD.	APPR.
1	3/98	CP	KGM	JSH
ADD LINE FROM CURB TO SWALE				
REVISION				

GENERAL NOTES

1. CURB INLET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C 478 (AASHTO M 199) & ASTM C 890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE PROJECT SPECIAL PROVISIONS.
2. TOP SURFACE TO BE BROOM FINISHED.
3. ALL EXTERNAL EDGES NOT LABELED SHALL BE TROWELLED WITH 1/4" RADIUS EDGER.

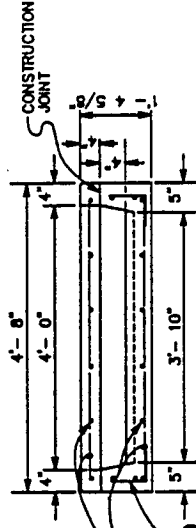


SECTION A-A



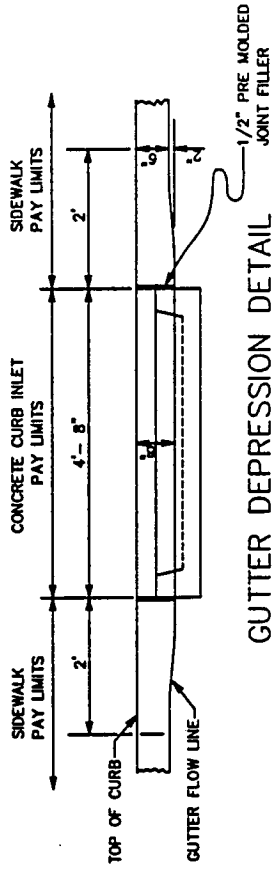
SECTION B-B
REBAR PLACEMENT

SPECIAL CURB INLET

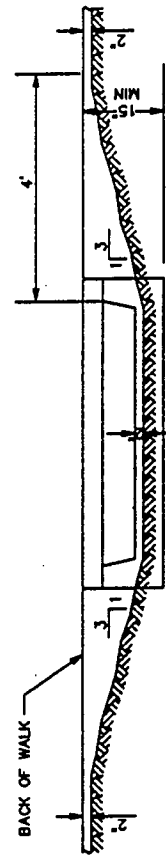


SECTION C-C

1/4" REBAR @ 10" O.C. E.W.
TYPICAL - TOP & BOTTOM
SEE SECTION B-B
TYPICAL - BOTH SIDES



GUTTER DEPRESSION DETAIL



OUTLET SWALE GRADING DETAIL

NO.	DATE	BY	CHKD.	APPR.	REVISION
1	11/08	OP	KCM	LSH	
2	11/08	OP	KCM	LSH	
3	11/08	SB	GM	RCM	
4	11/08	SB	GM	RCM	

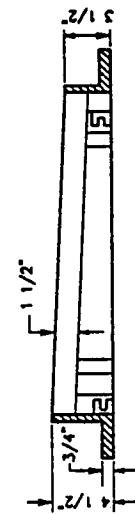
AMEND TEXT BACK OF WALK
DIMENSION MINIMUM DEPTH OF SWALE/WIDTH OF SLOPE
DETAIL CURB INLET AS A TWO PRICE UNIT

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99208 456-3500

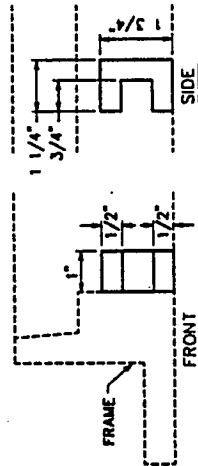
APPROVED:
COUNTY ENGINEER
DATE: 11/08

STANDARD
CURB INLET TYPE 2

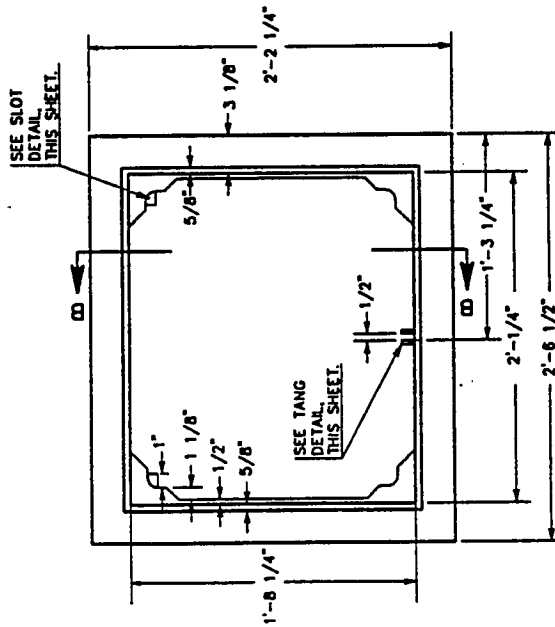
SHEET
B-9



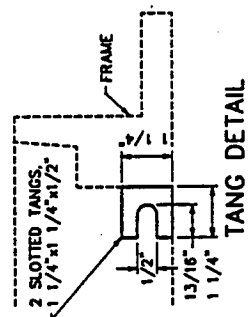
SECTION B-B



SLOT DETAIL



FRAME - TYPE 1



GENERAL NOTES

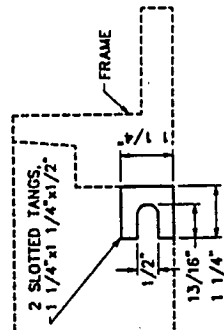
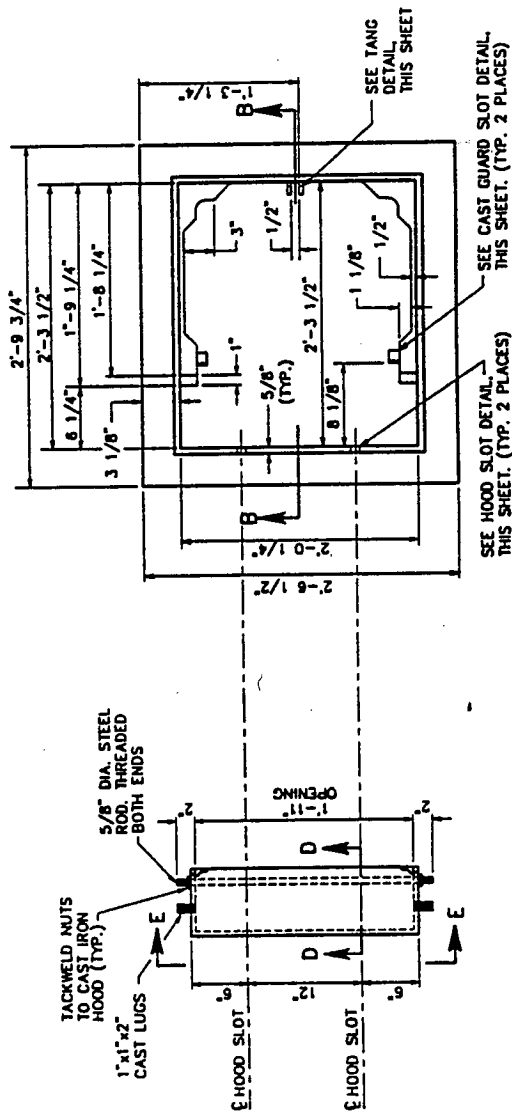
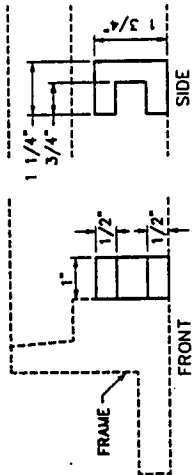
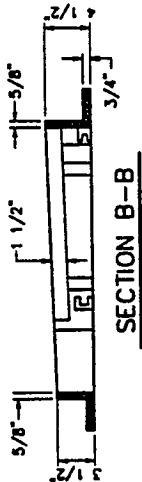
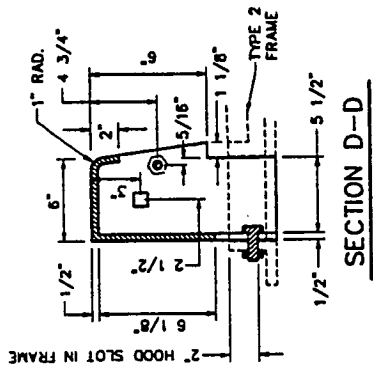
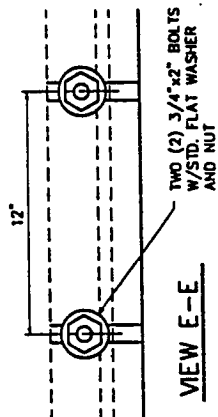
1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
2. USE WITH CATCH BASIN AND CONCRETE INLET TYPE 1, SEE STD. PLAN SHEETS B-4, 5 & 7.
3. FIT TOLERANCE SHALL BE $1/8" \pm$.
4. WELDING IS NOT PERMITTED.
5. GRATE GUARD REQUIRED. SEE SHEET B-17.
6. FOR GRATE DETAIL SEE STD. PLAN, SHEET B-12.



NO. DATE BY CHKD. APPR.		1 12/24/83 GSN RCH		CORRECTED DIM. ON FRAME SECTION B-B		REVISION		SPOKANE COUNTY		DEPARTMENT OF PUBLIC WORKS		SPOKANE, WA 99201		458-3000		APPROVED		DATE: 3-2-83		COUNTY ENGINEER		STANDARD		METAL FRAME, TYPE 1		SHEET		B-10	
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GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-80, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
2. BOLTS AND ROD SHALL CONFORM TO A.S.T.M. DESIGNATION A307, GRADE A.
3. USE WITH CATCH BASIN AND CONCRETE INLET TYPE 2. SEE STD. PLAN SHEETS B-4.6 & 7.
4. FIT TOLERANCE SHALL BE $1/8"$ ±.
5. FOR GRATE DETAILS SEE STD. PLAN, SHEET B-13 OR B-14.
6. GRATE GUARD REQUIRED. SEE SHEET B-17.



TANG DETAIL

HOOD

FRAME - TYPE 2

**SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA 99260 456-3600**

STANDARD
METAL FRAME, TYPE 2

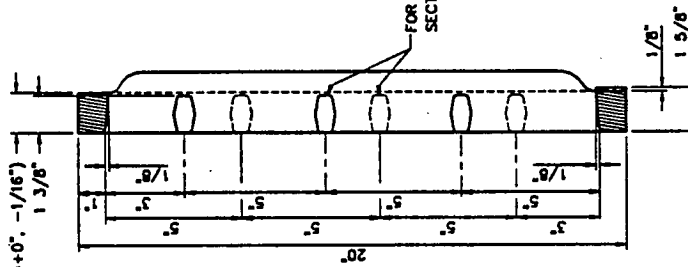
B-11
SHEET

REVISION

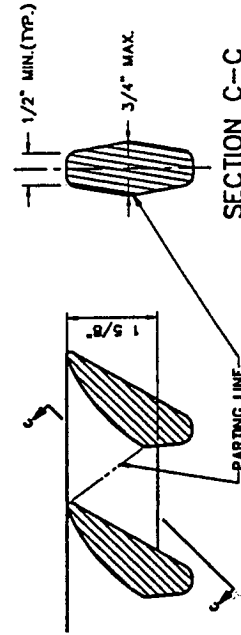
NO DATE BY CKD APPR.

GENERAL NOTES

1. THE NAME OF THE MANUFACTURER AND DIRECTION OF FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90. CAST IRON GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-64 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE $\pm 1/16"$ TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B-10.
6. WELDING IS NOT PERMITTED.
7. AS AN ALTERNATE, 8 PADS 1 1/2" X 3/4" X 1/8", INTEGRALLY CAST WITH THE GRATE, MAY BE USED.

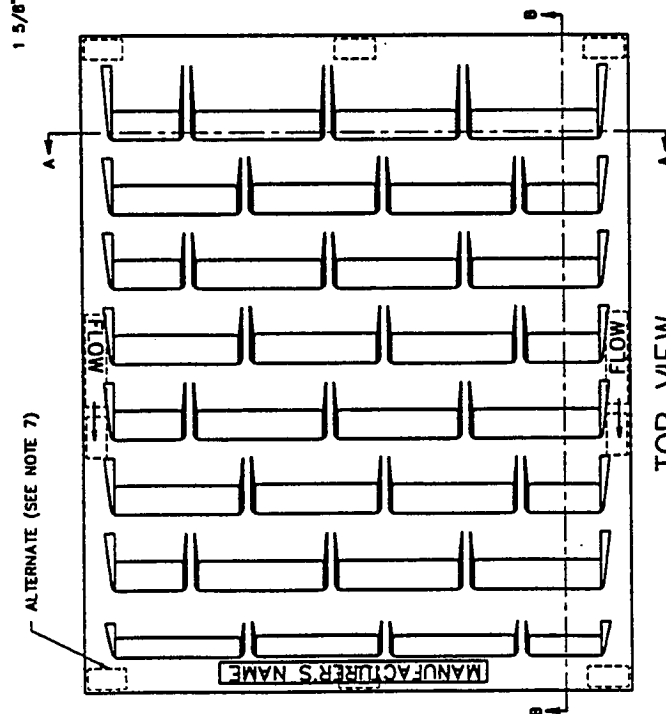


SECTION A-A



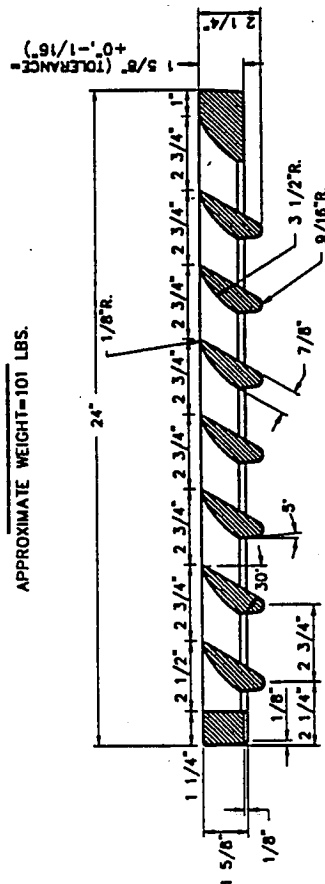
SECTION C-C

VANE DETAIL



TOP VIEW

APPROXIMATE WEIGHT=101 LBS.



SECTION B-B



APPROVED
COUNTY ENGINEER
DATE: 5-25-83
EX-102028

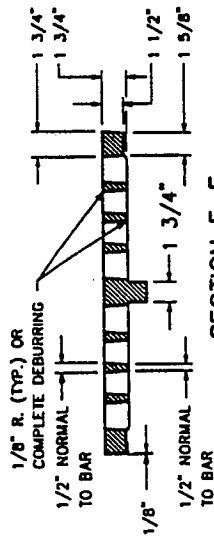
REVISION

SHEET
B-12

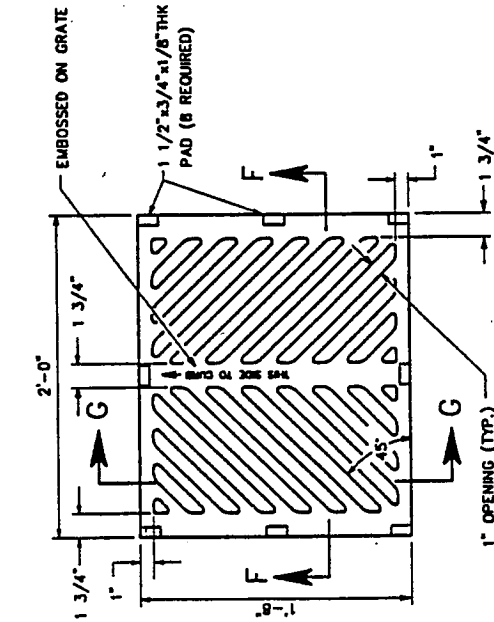
STANDARD
METAL GRATE TYPE 1

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 426-3600

NO. DATE BY CKD. LAPP.



SECTION F-F



GRATE

GENERAL NOTES

1. THE WORDS "THIS SIDE TO CURB" SHALL BE EMBOSSED ON THE TOP OF THE GRATE, WITH AN ARROW INDICATING THE CURB SIDE OF THE GRATE.
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-80, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, GRADE 80-55-06.
3. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STD. PLAN, B-11.
4. WELDING IS NOT PERMITTED.
5. AS AN ALTERNATE, PADS 1 1/2" x 3/4" x 1/8" INTEGRALLY CAST WITH THE GRATE MAY BE USED.



APPROVED
COUNTY ENGINEER
DATE: 5/21/80

STANDARD
METAL GRATE, TYPE 2

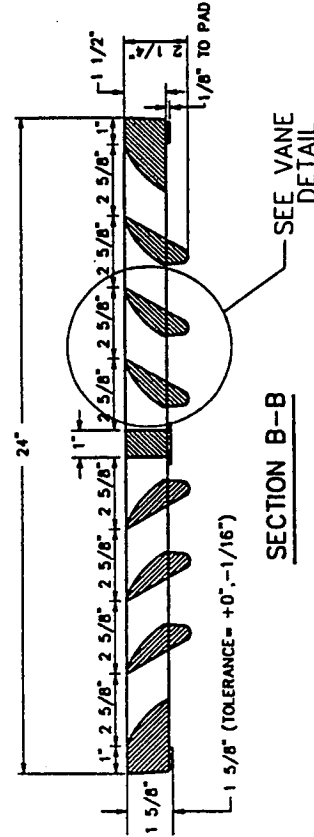
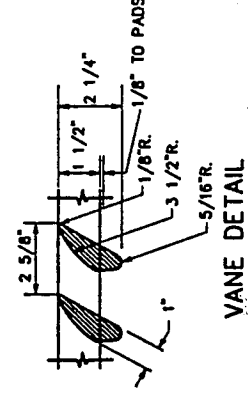
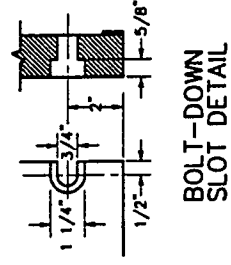
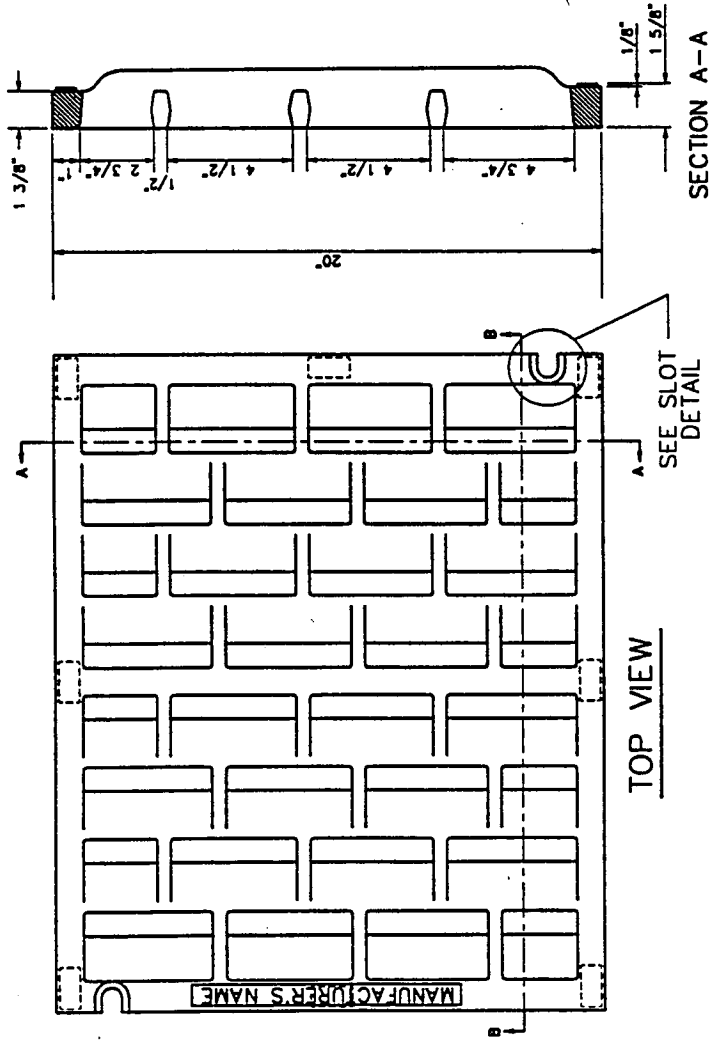
SHEET
B-13

REVISION

NO DATE BY CKO LAPP

GENERAL NOTES

1. THE NAME OF THE MANUFACTURER AND THE DIRECTION OF FLOW SHALL BE REPRODUCED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RECESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE $\pm 1/16"$ TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. THE FRAME SHALL BE MANUFACTURED IN ACCORDANCE WITH STANDARD PLAN B-11.
6. WELDING IS NOT PERMITTED.



APPROVED
COUNTY ENGINEER
DATE 5-2-85

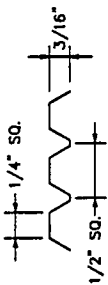
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99201 426-3600

REVISION

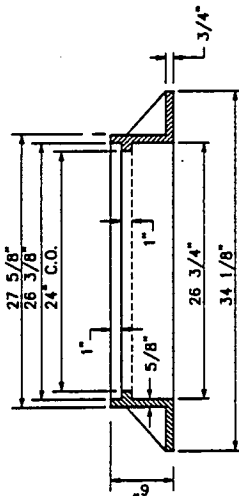
NO DATE BY CKD APPR

STANDARD
METAL GRATE TYPE 3

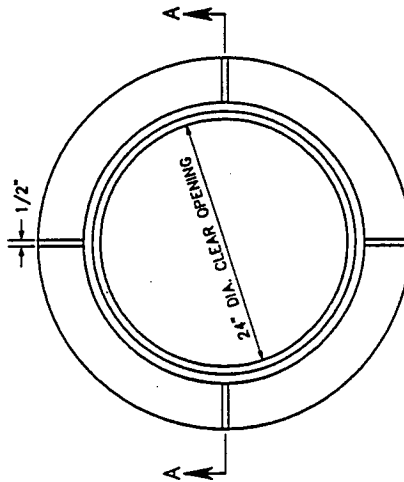
SHEET
B-14



COVER SKID DESIGN DETAIL

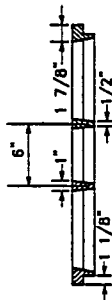


SECTION A-A

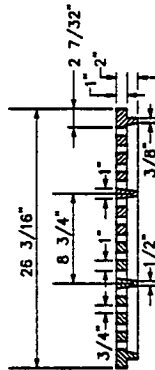


MIN. WEIGHT 168 LBS.

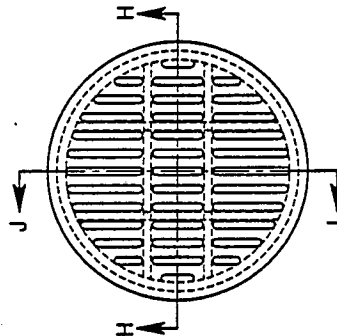
FRAME - TYPE 4



SECTION J-J



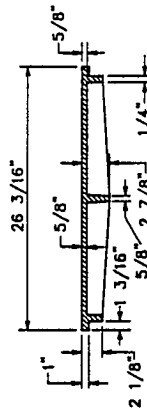
SECTION H-H



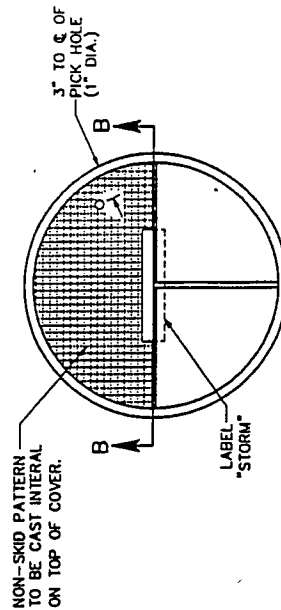
GRATE - TYPE 4

GENERAL NOTES

1. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84, CLASS 80-55-06.
2. METAL FRAME AND GRATE TYPE 4 SHALL ONLY BE USED WHERE SHOWN ON THE CONSTRUCTION PLANS. IT SHALL NOT BE USED AT A CURB LINE.
3. DRAINAGE SLOTS SHALL BE PLACED PARALLEL TO THE DIRECTION OF FLOW.
5. FIT TOLERANCE SHALL BE $1/8" \pm$.
6. WELDING IS NOT PERMITTED.



SECTION B-B



SOLID COVER

MIN. WEIGHT 118 LBS.



1 3798 CP KCM JSH NO. DATE BY CRO. APPR.	TYPE 4 FRAME AND GRATE REVISION	SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99260 456-3600	APPROVED: [Signature] COUNTY ENGINEER DATE: 10/1/2013	METAL FRAME, GRATE & SOLID COVER - TYPE 4 STANDARD	SHEET B-15
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GRATÉ

SECTION A-A

SECTION B-B

FRAME

SECTION A-A

SECTION A-A

GENERAL NOTES

1. THE NAME OF THE MANUFACTURER AND THE DIRECTION OF FLOW SHALL BE EMBOSSED ON THE TOP SURFACE OF EACH GRATE. LETTERING TO BE RESESSED 1/16".
2. FRAME SHALL BE GRAY IRON CONFORMING TO A.S.T.M. A48-90, GRADE 30. THE GRATE SHALL BE DUCTILE IRON CONFORMING TO A.S.T.M. A536-84 GRADE 80-55-06.
3. DIMENSIONS SHALL HAVE $\pm 1/16"$ TOLERANCE, EXCEPT AS NOTED.
4. EDGES SHALL HAVE 1/8" RADIUS, 1/8" CHAMFER OR COMPLETE DEBURRING.
5. CRATE SHALL BE MANUFACTURED FOR EITHER LEFT OR RIGHT FLOW.
6. GRATES PLACED IN A SUMP CONDITION SHALL BE BI-DIRECTIONAL FLOW. (SEE SECTION B-8 ON SHEET B-14)
7. WELDING IS NOT PERMITTED.



**SPOKANE COUNTY
DEPARTMENT OF PUBLIC
SPOKANE, WA. 99208 456-**

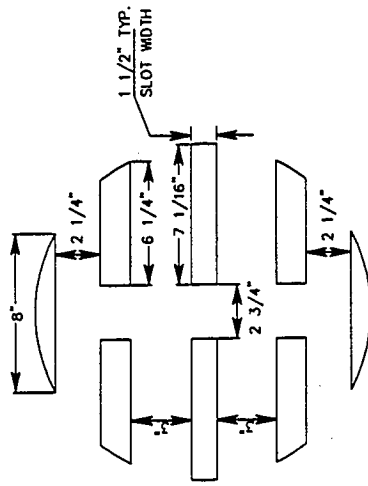
**SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS**

APPROVED
COUNTY ENGINEER

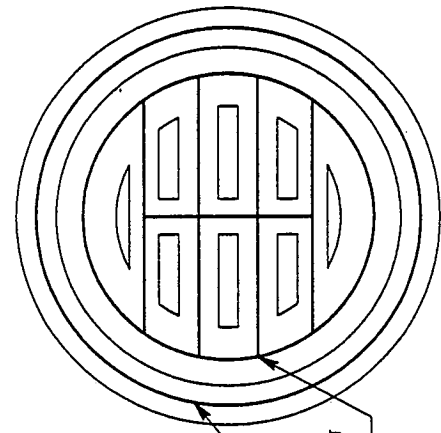


STANDARD
METAL FRAME & GRATE TYPE 5

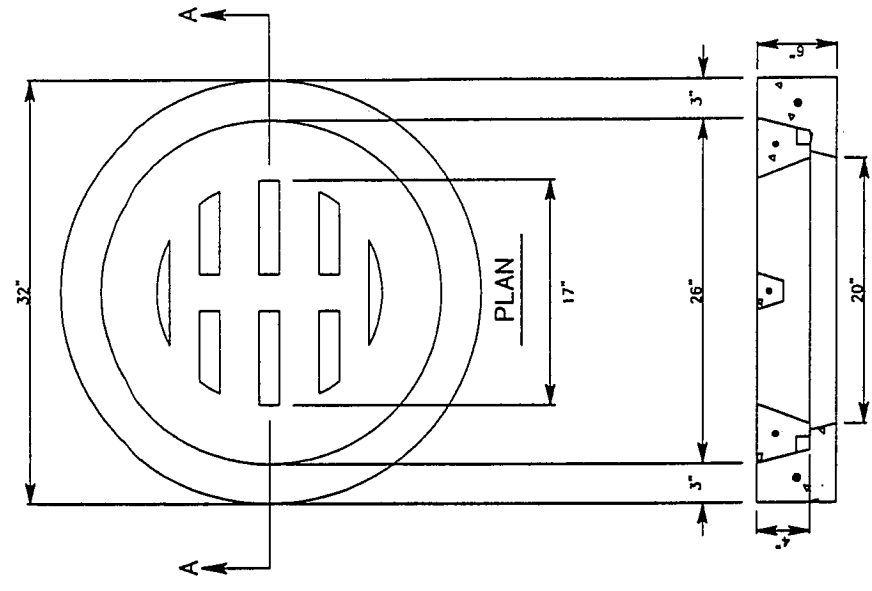
DATE 7-10-44
SHEET
B-16



SLOT SPACING



REBAR PLACEMENT



SECTION A-A

GENERAL NOTES

1. I.D. SHALL ONLY BE USED IN GRASSED PERCOLATION AREAS ON PRIVATE PROPERTY.
2. 4500 P.S.I. AIR ENTRAINED CONCRETE SHALL BE USED.

[Signature]

SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA 99208 456-3600		STANDARD CONCRETE SLOTTED COVER W/RING		SHEET B-16a	
APPROVED: <i>[Signature]</i> DATE: 11/15/90		AMENDED NOTES REVISION		1. 1/28/91 KGM JSH NO DATE BY CKD LAPP	

GENERAL NOTES

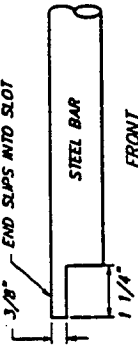
1. GRATE GUARD SHALL BE USED ON ALL TYPE 1 AND TYPE 2 FRAMES.
2. WELDS ON GRATE GUARD SHALL BE CONTINUOUS WELDS.
3. STEEL IN GRATE GUARD SHALL CONFORM WITH AASHTO M 183.
4. WELDS, WELDING PROCEDURES, AND WELDING MATERIALS SHALL CONFORM TO STANDARD SPECIFICATIONS FOR WELDING ISSUED BY THE AMERICAN WELDING SOCIETY.

SLIPS BETWEEN 2 SLOTTED TANGS, 3/8"x3" PIN HOLDS POSITION

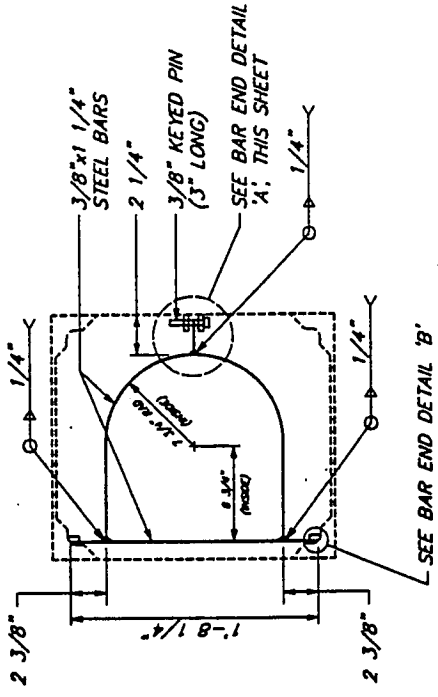


BAR END DETAIL 'A'

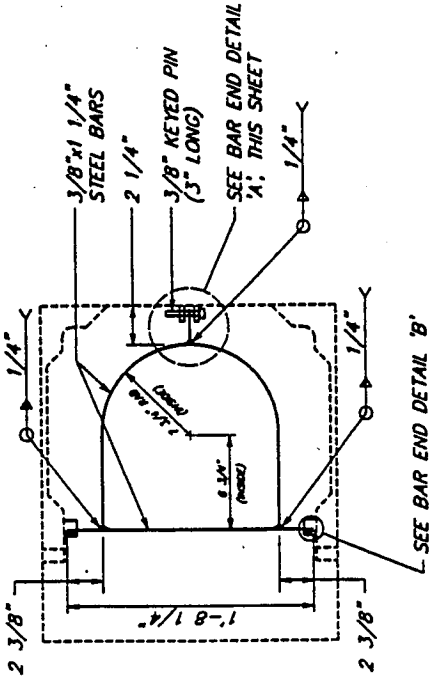
SEE SHEET B-8 OR B-9, GUARD SLOT DETAIL



BAR END DETAIL 'B'



TYPE 1 FRAME



TYPE 2 FRAME

GRATE GUARD



APPROVED
COUNTY ENGINEER
DATE: 5-5-92

SPokane County
Department of Public Works
Spokane, WA 99201 456-3600

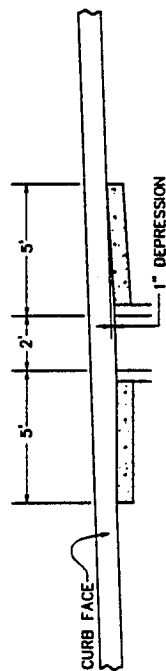
STANDARD
GRATE GUARD

SHEET
B-17

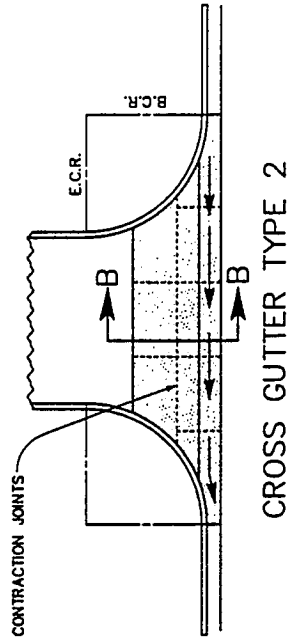
Diagram illustrating a gutter depression. The gutter has a 1.5% slope. The depression is shown with a 4% slope and a 12' minimum width. Slope breaks are indicated at the edges of the depression.

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.

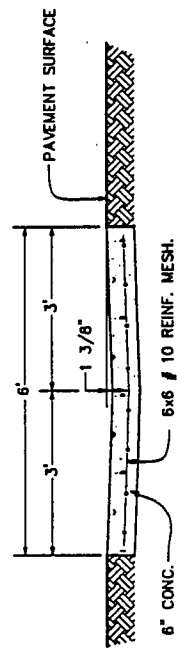
GUTTER DEPRESSION



CROSS GUTTER TYPE 2



CROSS GUTTER TYPE 1



SECTION A-A

SECTION B-B

W. A. Jones

RECEIVED
JAN 10 1968
U.S. DEPT. OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D.C.

INDEXED
SERIALIZED
FILED

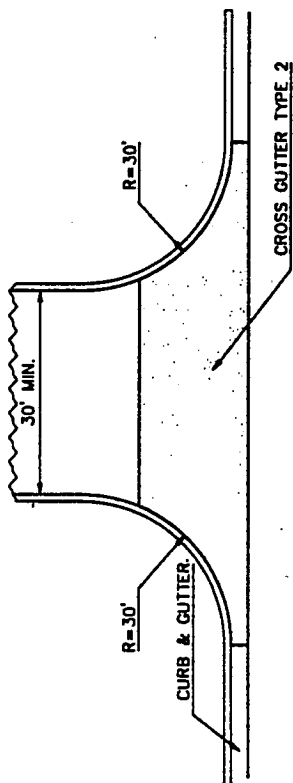
JAN 10 1968
FBI - NEW YORK

**SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. 99260 456-3600**

[illegible][illegible]

GENERAL NOTES

1. THE GUTTER DEPRESSION SHALL BE CONSTRUCTED OF ASPHALT CONCRETE WHERE NO CONCRETE GUTTER IS SPECIFIED. A.C. THICKNESS SHALL BE THE SAME AS SPECIFIED FOR THE ROAD.
2. PORTLAND CEMENT CONCRETE SHALL BE CLASS 3000.



HIGH VOLUME DRIVEWAY APPROACH



SPokane County
DEPARTMENT OF PUBLIC WORKS
SPokane, WA 99200 426-3000

APPROVED
COUNTY ENGINEER
DATE: 5-15-78
STANDARD
HIGH VOLUME DRIVEWAY APPROACH

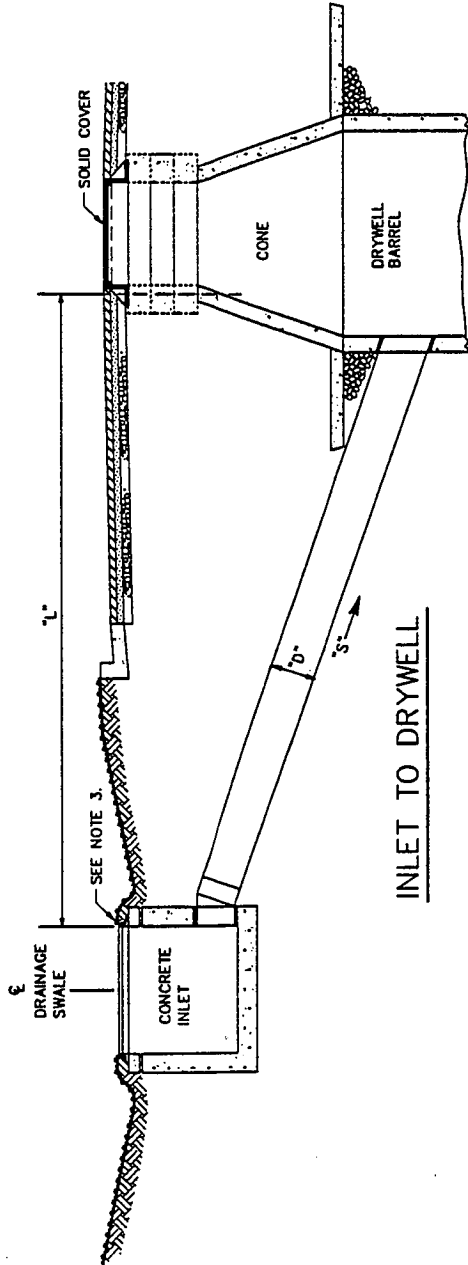
872-184.180
SHEET
B-18A

REVISION

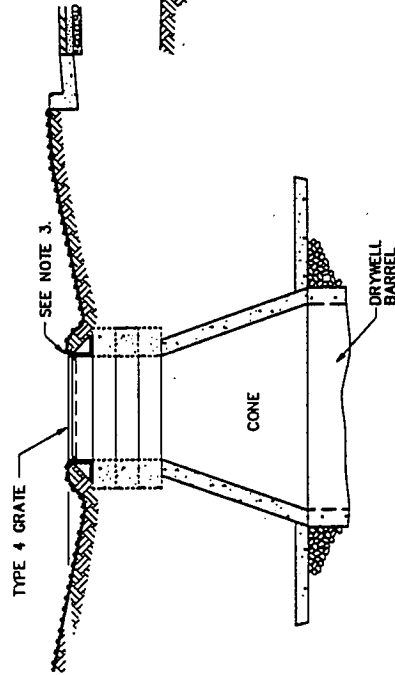
NO. DATE BY CHKD. APPR.

GENERAL NOTES

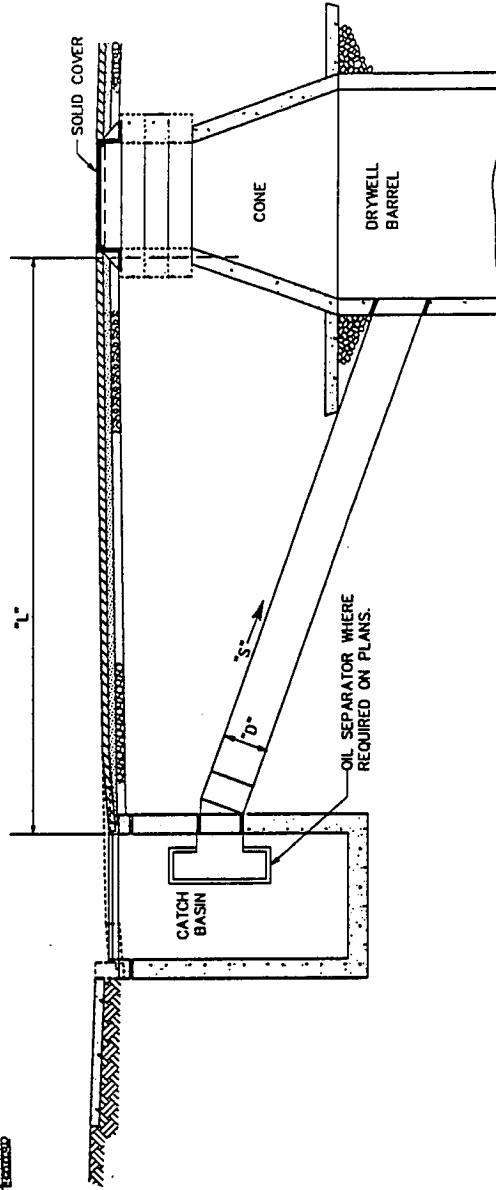
1. WHERE SPECIFIED ON THE PLANS, A SOLID COVER SHALL BE USED IN LIEU OF A GRATE.
2. "D" SHALL BE A MINIMUM OF 10". "L", "S", AND "D" SHALL BE SHOWN ON PLANS.
3. INLET SHALL BE RAISED 6" ABOVE THE FLOWLINE OF THE DRAINAGE SWALE UNLESS OTHERWISE SHOWN ON THE PLANS.
4. DRYWELLS PLACED IN ROADWAY SHALL BE PLACED IN CENTER ON TRAFFIC LANE, A MINIMUM OF 15' FROM CATCH BASIN OR INLET.
5. WHEN PVC PIPE IS USED, A PVC ADAPTER SHALL BE INSTALLED.
6. PVC ADAPTERS SHALL BE GROUTED INTO INLETS, CATCH BASINS & DRYWELLS.
7. PVC PIPE INSTALLED UNDER ROADWAY SHALL HAVE 2' MINIMUM COVER.
8. ELBOWS UP TO 45° MAY BE USED FOR CONNECTION AT CATCH BASINS & INLETS.



INLET TO DRYWELL

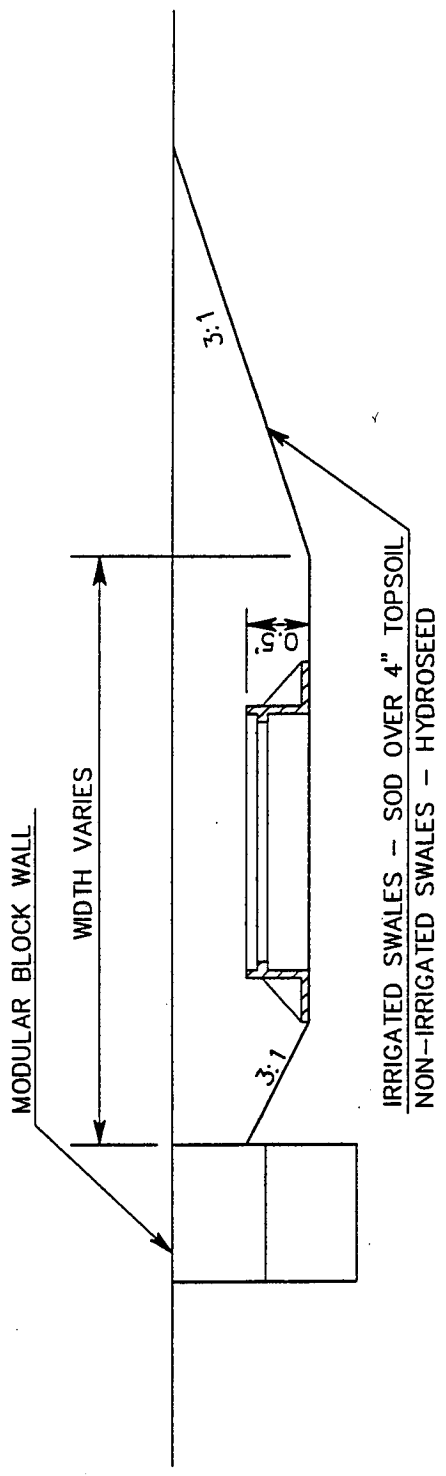


SWALE DRYWELL INSTALLATION



CATCH BASIN TO DRYWELL

SPOKANE COUNTY		STANDARD		SHEET	
DEPARTMENT OF PUBLIC WORKS		INLET INSTALLATIONS		B-19	
SPOKANE, WA 99260		APPROVED: <i>[Signature]</i>		DATE: 10/1/88	
AMENDED GRADE TYPE		REVISION		NO. DATE BY CKD APPR.	
1	3/79/BJ/KGM	JSH			



SWALE SECTION WITH MODULAR BLOCK WALL

NO. DATE BY CKD. APPR.		REVISION		SPOKANE COUNTY DEPARTMENT OF PUBLIC WORKS SPOKANE, WA. 99206		APPROVED: COUNTY ENGINEER DATE: 7/22/93		STANDARD SWALE WITH MODULAR BLOCK WALL		SHEET B-20	
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[Signature]

MANHOLE TYPE	MIN. DEPTH TO I.E.	MAX. DEPTH	STEPS	MAX. PIPE SIZE (I.D.)*	SHEET NO.
I-48	6'	25'	YES	21"	U-2
I-60	9'	25'	YES	36"	U-3
II-72	9'	25'	YES	42"	U-4
II-96	12'	25'	YES	60"	U-4
III-48**	4'	6'	NO	21"	U-5
III-60	6'	9'	YES	36"	U-6
III-72	7'	9'	YES	42"	U-6
III-96	8'	12'	YES	60"	U-6
IV	8'	25'	YES	42" MIN. PIPE SIZE	U-7

*MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.

**MANHOLES LESS THAN 6' IN DEPTH MUST BE APPROVED
BY SPOKANE COUNTY SEWER DESIGN MANAGER



STANDARD U-0

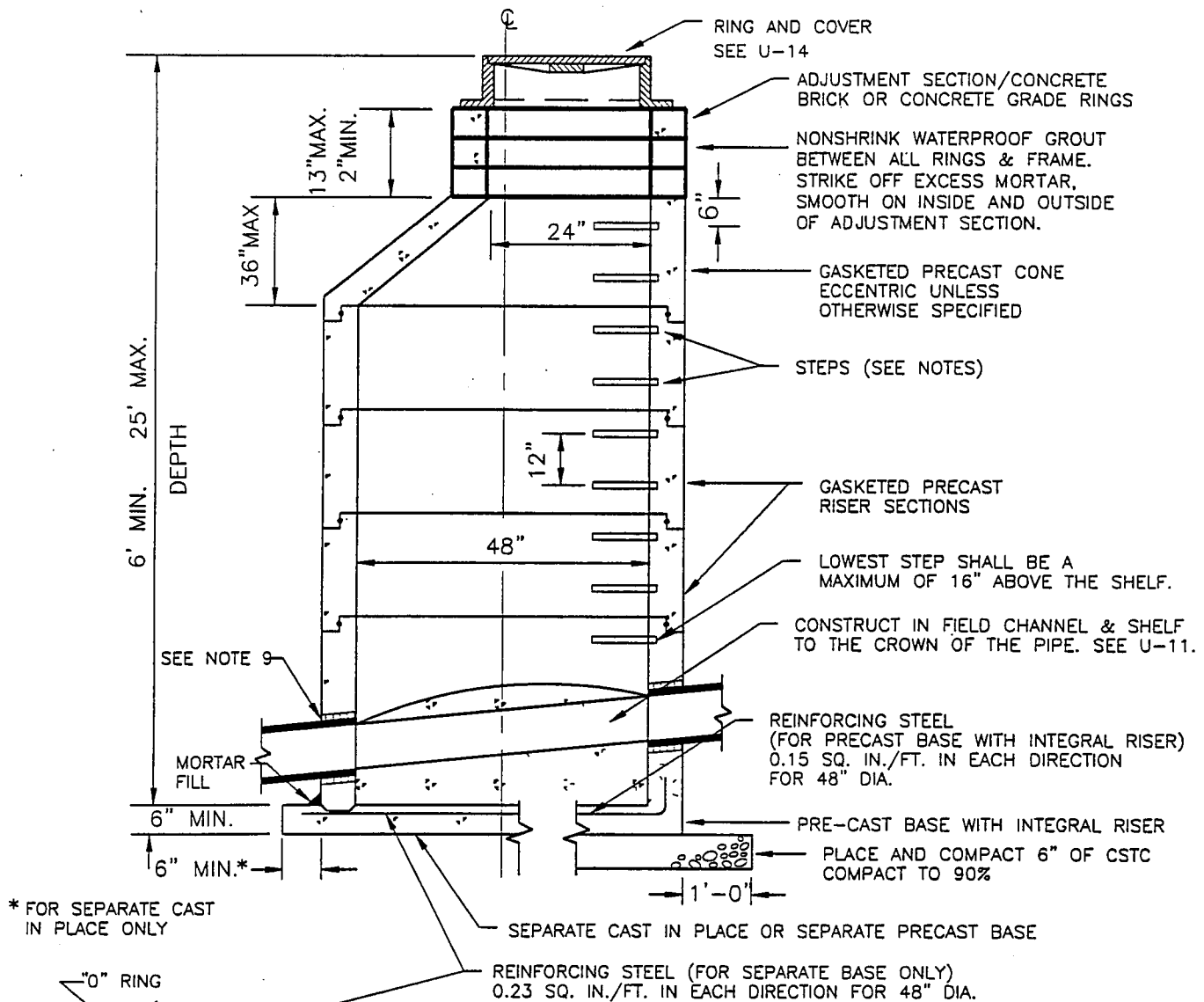
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
MANHOLE TYPES & DEPTHS

SHEET
U-1

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



* FOR SEPARATE CAST IN PLACE ONLY

DESIGN ASSUMPTIONS

HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300 #/FT.² (MIN.)
 HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800 #/FT.² (MIN.)

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 21" FOR 48" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURASEAL III, OR APPROVED EQUAL MANHOLE ADAPTORS.



EXPIRES 8/20/00

STANDARD U-02

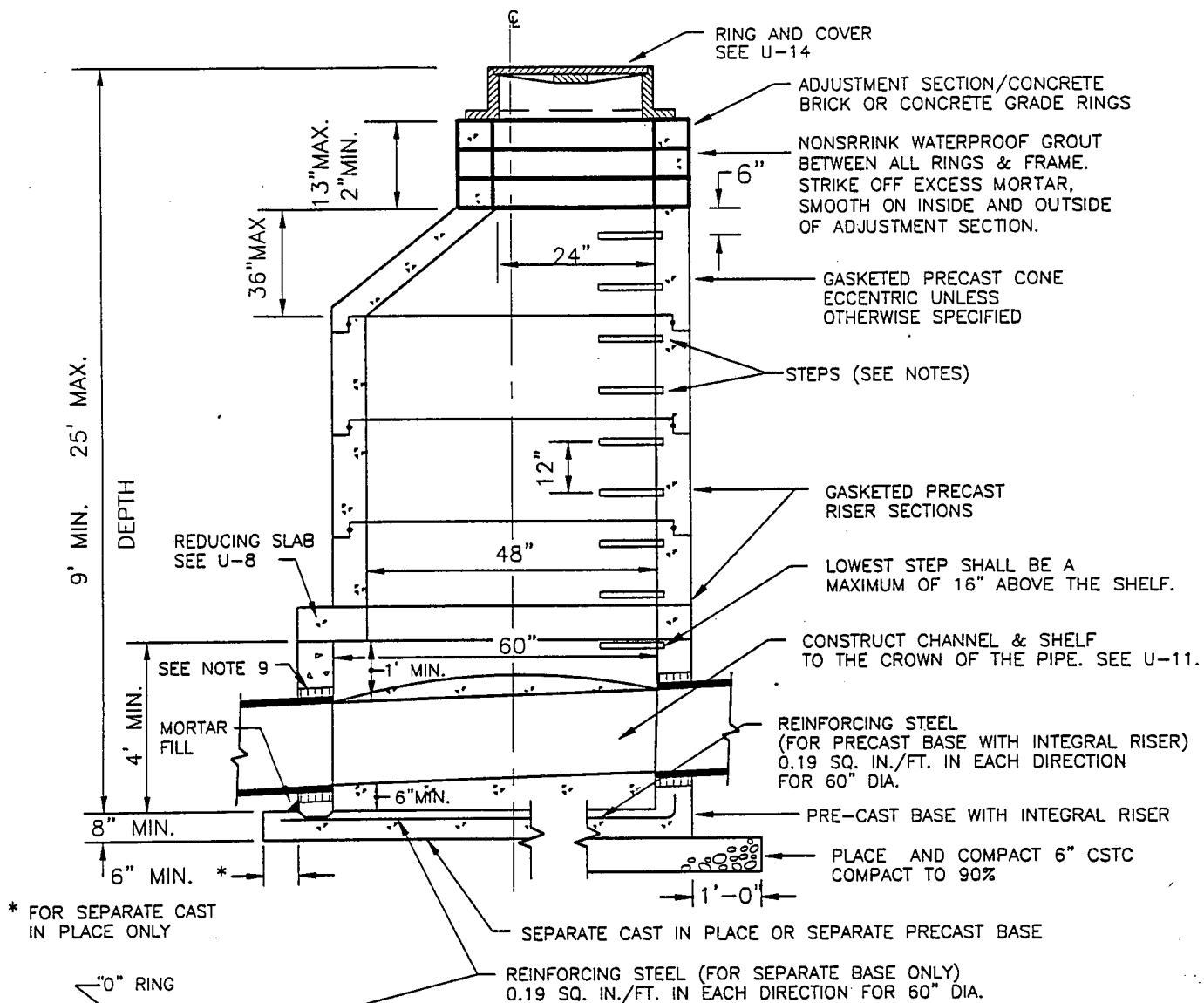
APPROVED: DBK
 UTILITIES DIRECTOR
 DATE: 11/5/99

STANDARD
 MANHOLE TYPE I-48

SHEET
 U-2

NO.	DATE	BY	CHKD.	APPR.	REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604



* FOR SEPARATE CAST IN PLACE ONLY

"O" RING

PRECAST BASE JOINT

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 36" FOR 60" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR

DESIGN ASSUMPTIONS

HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300 #/FT² (MIN)
 HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800 #/FT² (MIN.)



EXPIRES 8/20/00

STANDARD U-03

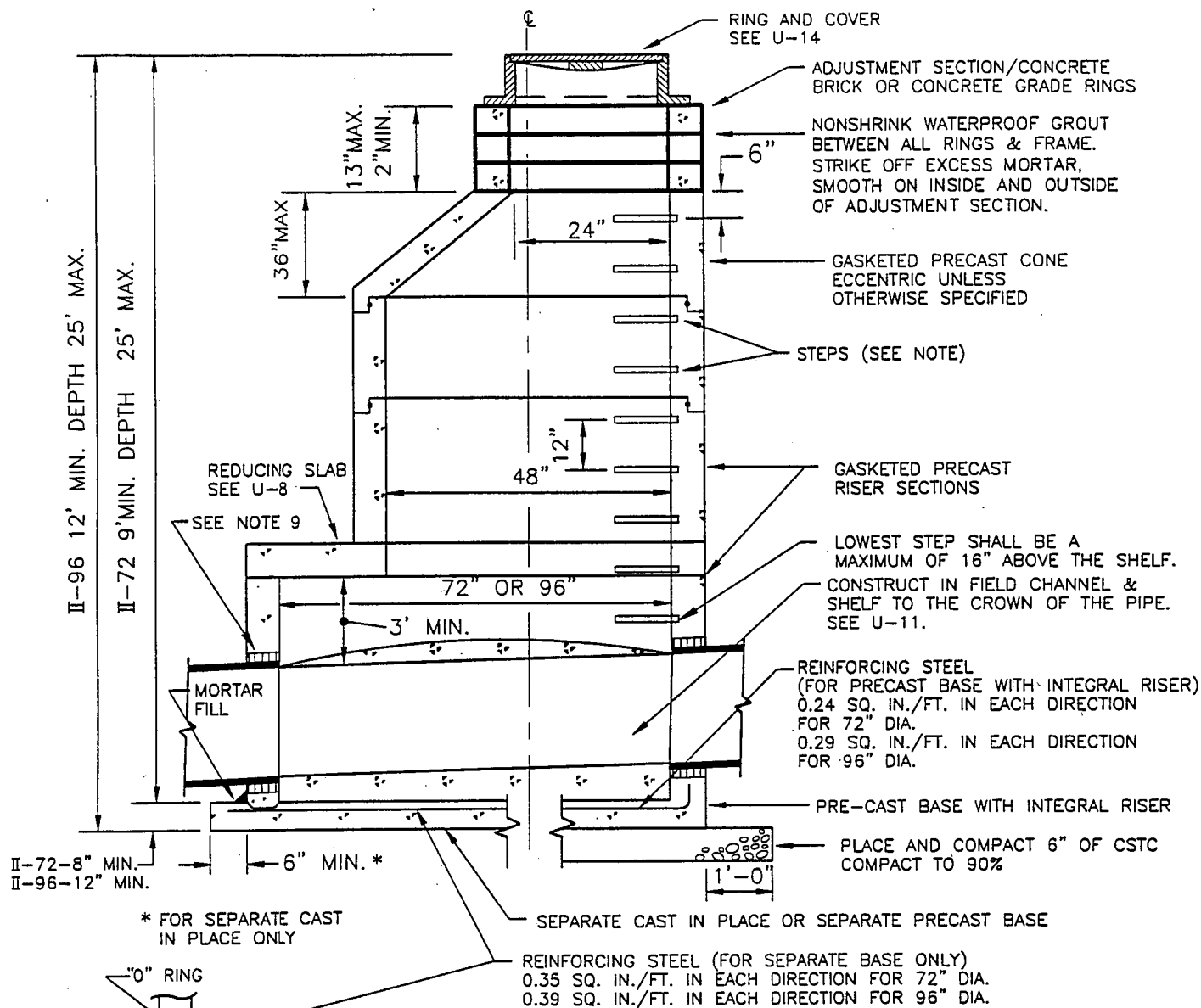
APPROVED: *NBR*
 UTILITIES DIRECTOR
 DATE: 11/15/99

STANDARD
 MANHOLE TYPE I-60

SHEET
 U-3

1	6/99	MLF	G. REPP	ADDED MIN. TOLERANCE ON BOTTOM BARREL
NO.	DATE	BY	CKD.	APPR.
				REVISION

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604



DESIGN ASSUMPTIONS

HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300 #/FT² (MIN.)
 HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800 #/FT² (MIN.)

NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
4. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 42" FOR 72" MANHOLE, 60" FOR 96" MANHOLE.. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT SECTION.
7. ALL MANHOLES SHALL HAVE STEPS
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR.



EXPIRES 8/20/00

STANDARD U-04

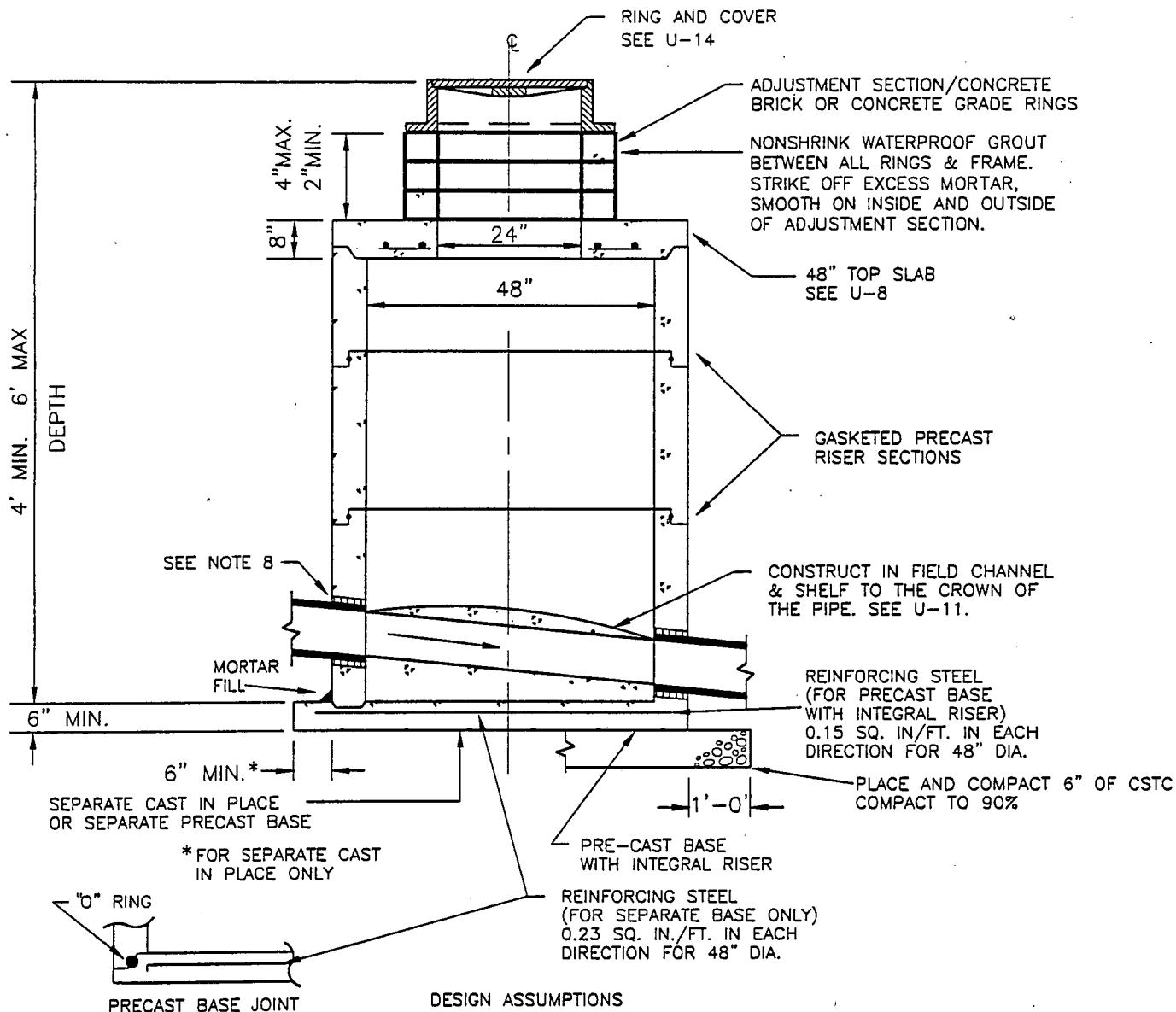
APPROVED: N3R
 UTILITIES DIRECTOR
 DATE: 11/15/99

STANDARD
 MANHOLE TYPE II-72, II-96

SHEET
 U-4

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



DESIGN ASSUMPTIONS

5'-4" TO 8': SOIL BEARING VALUE EQUALS 3300 #/FT² (MIN)

NOTES

- MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
- ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
- PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
- KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MAXIMUM PIPE SIZE IS 21" FOR 48" MANHOLE. (MAX. PIPE SIZE MAY BE LIMITED BY PIPE CONFIGURATION.) MINIMUM DISTANCE BETWEEN HOLES IS 8".
- ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
- USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL III, OR APPROVED EQUAL MANHOLE ADAPTOR.



EXPIRES 8/20/00

STANDARD U-05

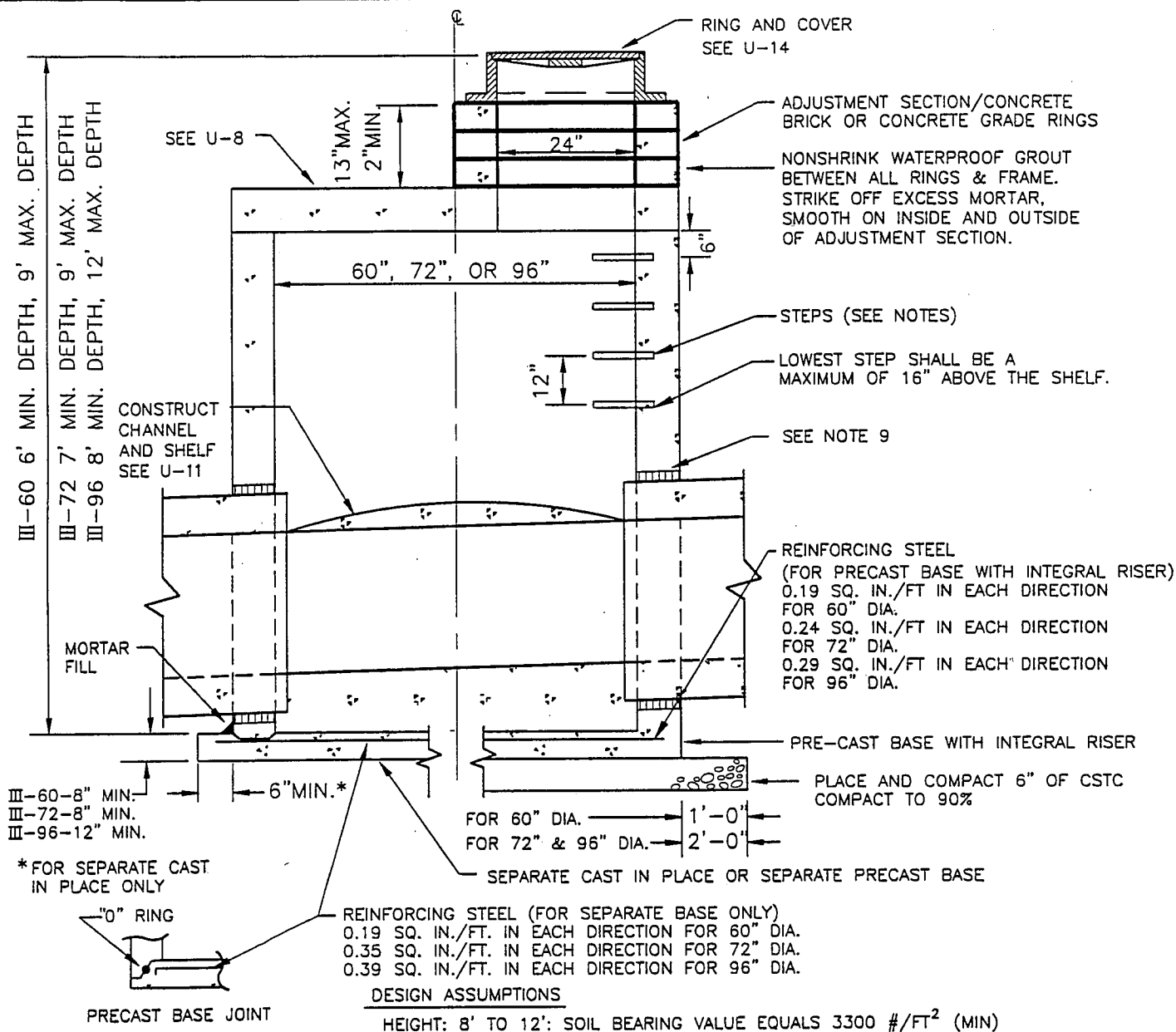
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
MANHOLE TYPE III-48

SHEET
U-5

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CHKD.	APPR.	REVISION



NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH CURRENT WSDOT/APWA STANDARD SPECIFICATIONS.
2. ALL REINFORCED CAST IN PLACE CONCRETE SHALL BE CLASS 4000. NON-REINFORCED CONCRETE IN CHANNEL AND SHELF SHALL BE CLASS 3000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MINIMUM.
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5. ALL BASE REINFORCING SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MINIMUM CLEARANCE.
6. ALL MANHOLES SHALL HAVE STEPS
7. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT RING
8. THE MANHOLE OPENING SHALL BE ORIENTED DIRECTLY OVER THE INVERT OF THE LARGEST INLET PIPE.
9. USE A-LOK, KOR-N-SEAL, INSERTA TEE, DURA-SEAL, OR APPROVED EQUAL MANHOLE ADAPTOR.



EXPIRES 8/20/00

STANDARD U-08

APPROVED: NBR
 UTILITIES DIRECTOR
 DATE: 11/5/99

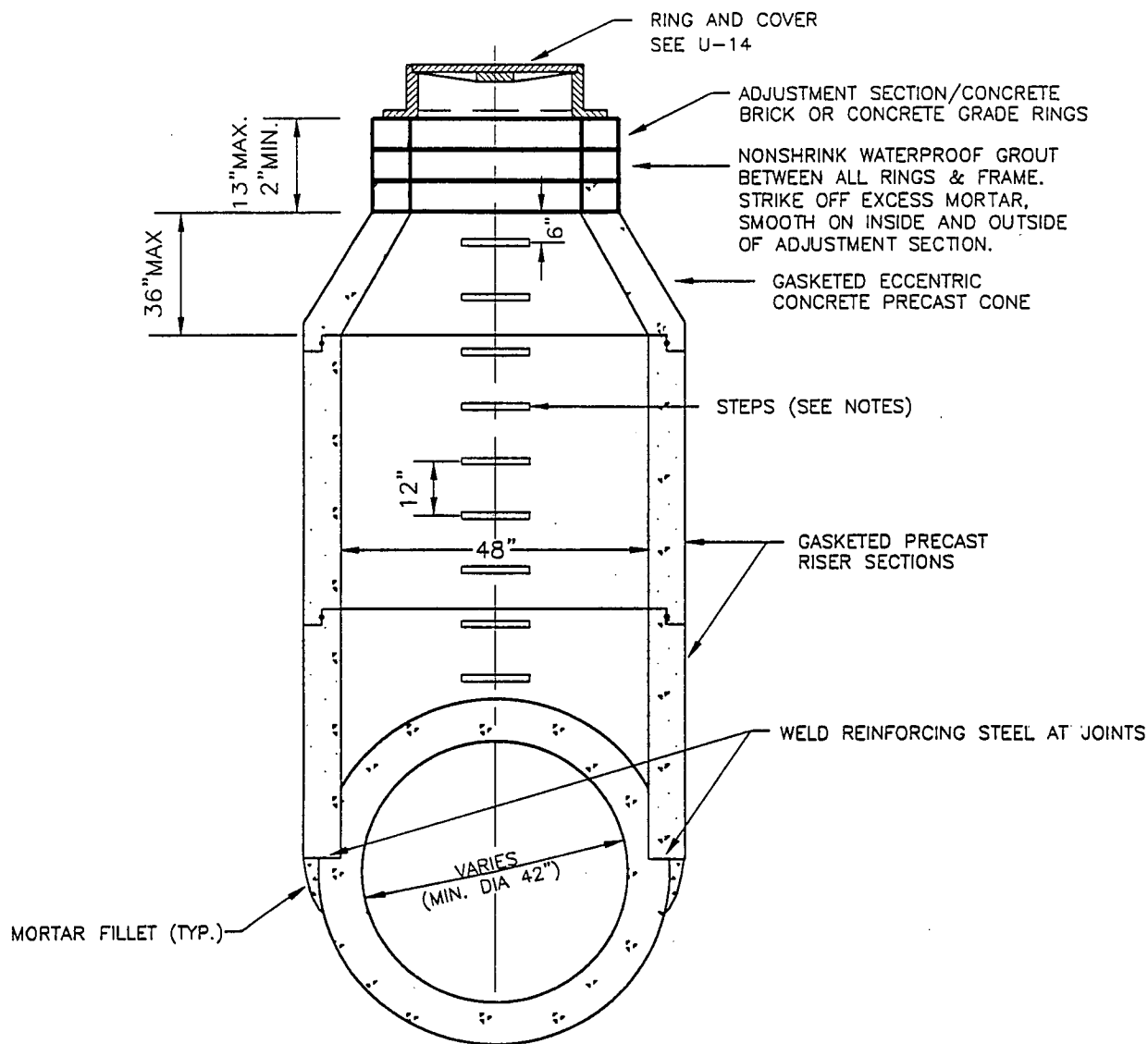
STANDARD
 MANHOLE TYPE III-60, III-72, III-96

SHEET
U-6

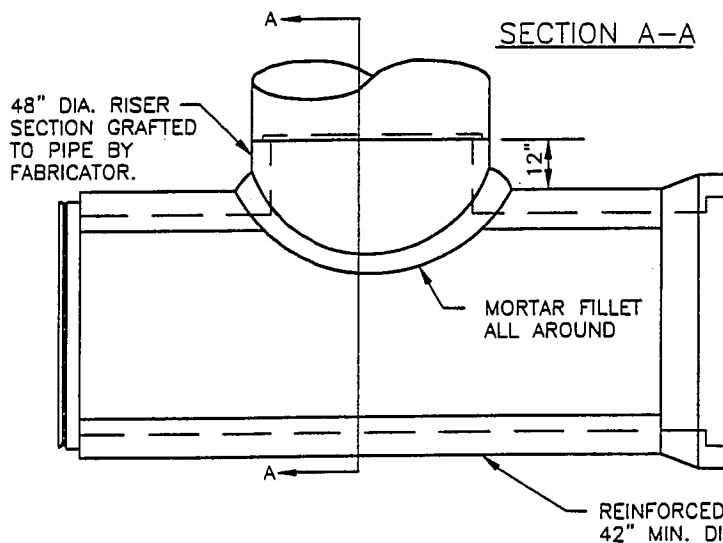
SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

NO. DATE BY CKD. APPR.

REVISION



SECTION A-A



NOTES

1. MANHOLES TO BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M-199 (ASTM C 478) UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS, AND IN ACCORDANCE WITH WSDOT SEC 6-02.3.
2. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
3. ALL MANHOLES SHALL HAVE STEPS.
4. NO STEPS SHALL BE PLACED IN THE ADJUSTMENT RING
5. AN ECCENTRIC CONE SHALL BE REQUIRED.



EXPIRES 8/20/00

STANDARD U-07

APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

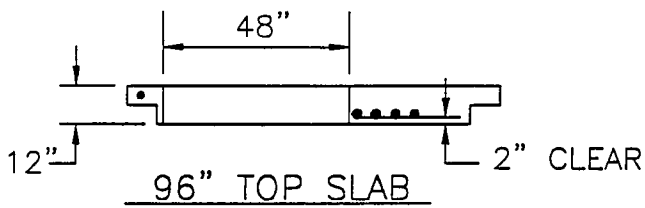
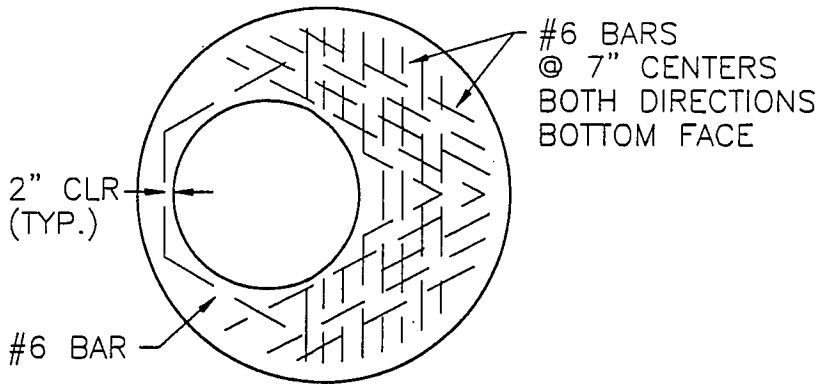
STANDARD
MANHOLE TYPE IV

SHEET
U-7

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO. DATE BY CKD. APPR.

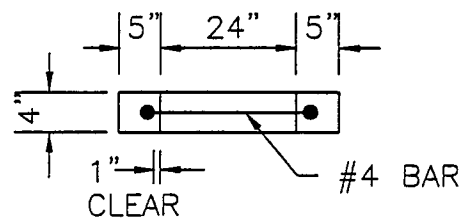
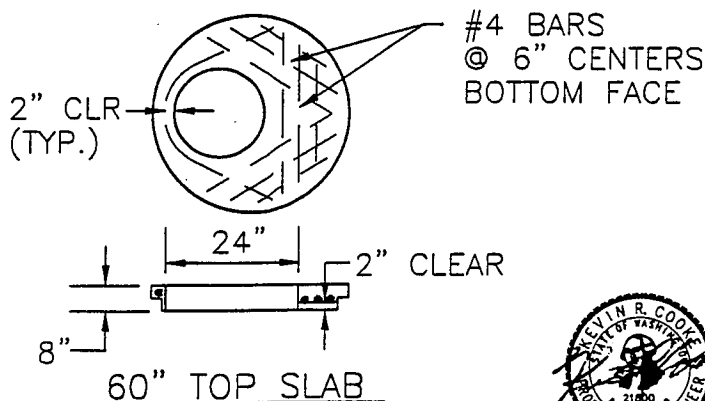
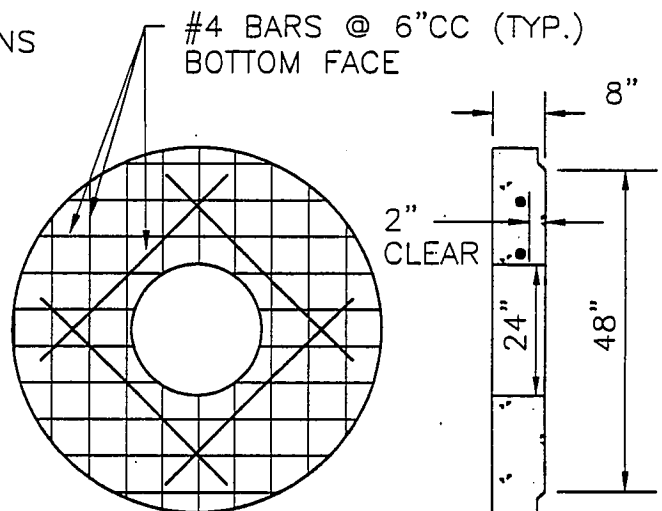
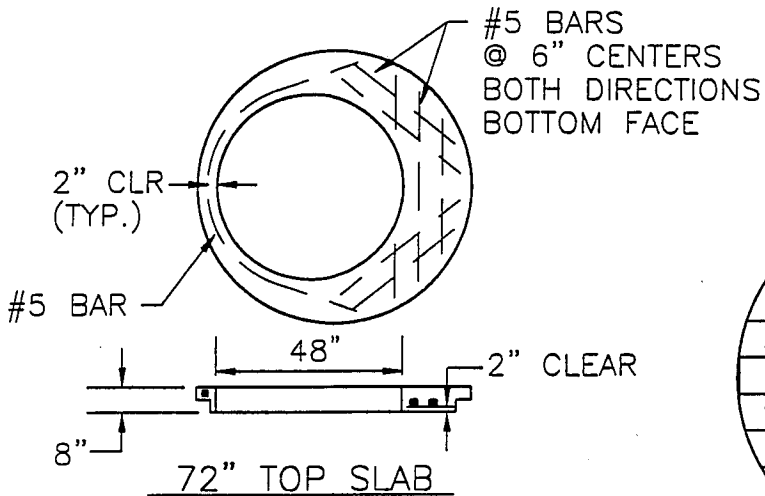
REVISION



COPOLYMER POLYPROPYLENE PLASTIC
1/2 IN. GRADE 60 STEEL REINFORCEMENT



MANHOLE STEP



EXPIRES 8/20/00

STANDARD U-08

APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

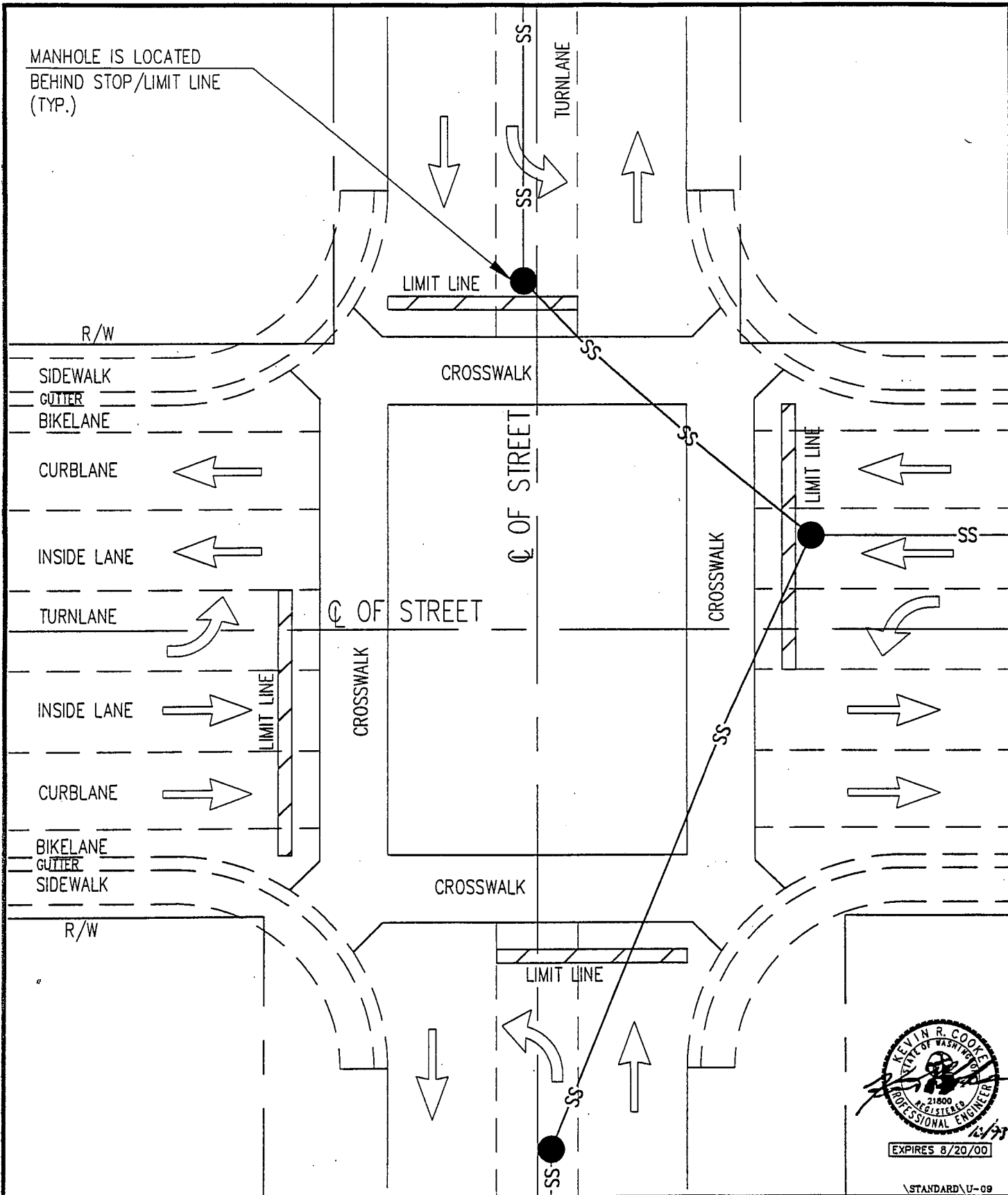
STANDARD
REDUCING SLABS &
MANHOLE STEP

SHEET
U-8

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CHKD.	APPR.	REVISION

MANHOLE IS LOCATED
BEHIND STOP/LIMIT LINE
(TYP.)



EXPIRES 8/20/00

STANDARD U-09

APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
MANHOLE PLACEMENT IN SIGNALIZED INTERSECTION

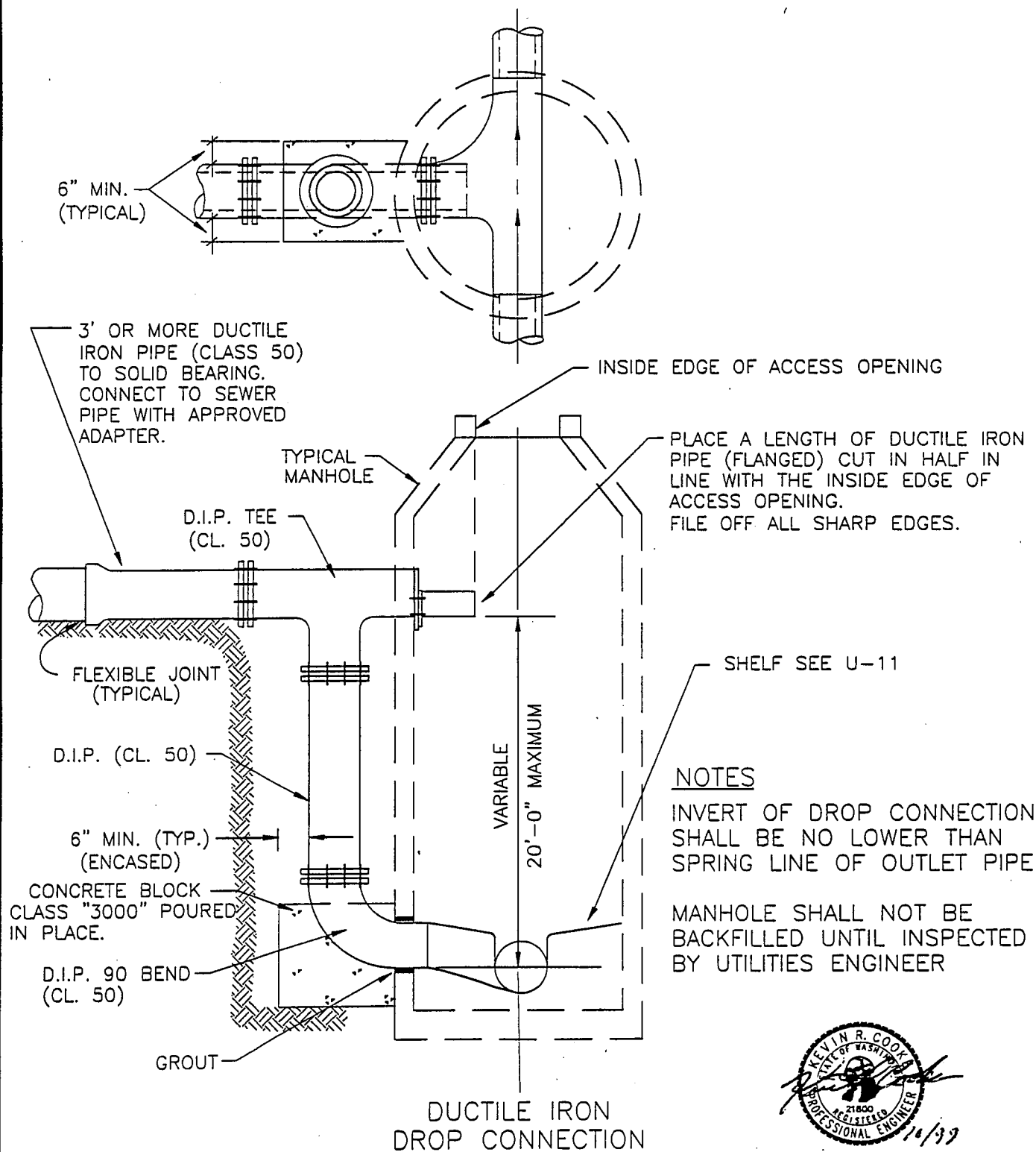
SHEET
U-9

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO. | DATE | BY | CKD. | APPR. |

REVISION

NOTE: THIS MANHOLE MAY BE USED IN SPECIAL CIRCUMSTANCES
UPON APPROVAL BY THE SPOKANE COUNTY SEWER DESIGN MANAGER



APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

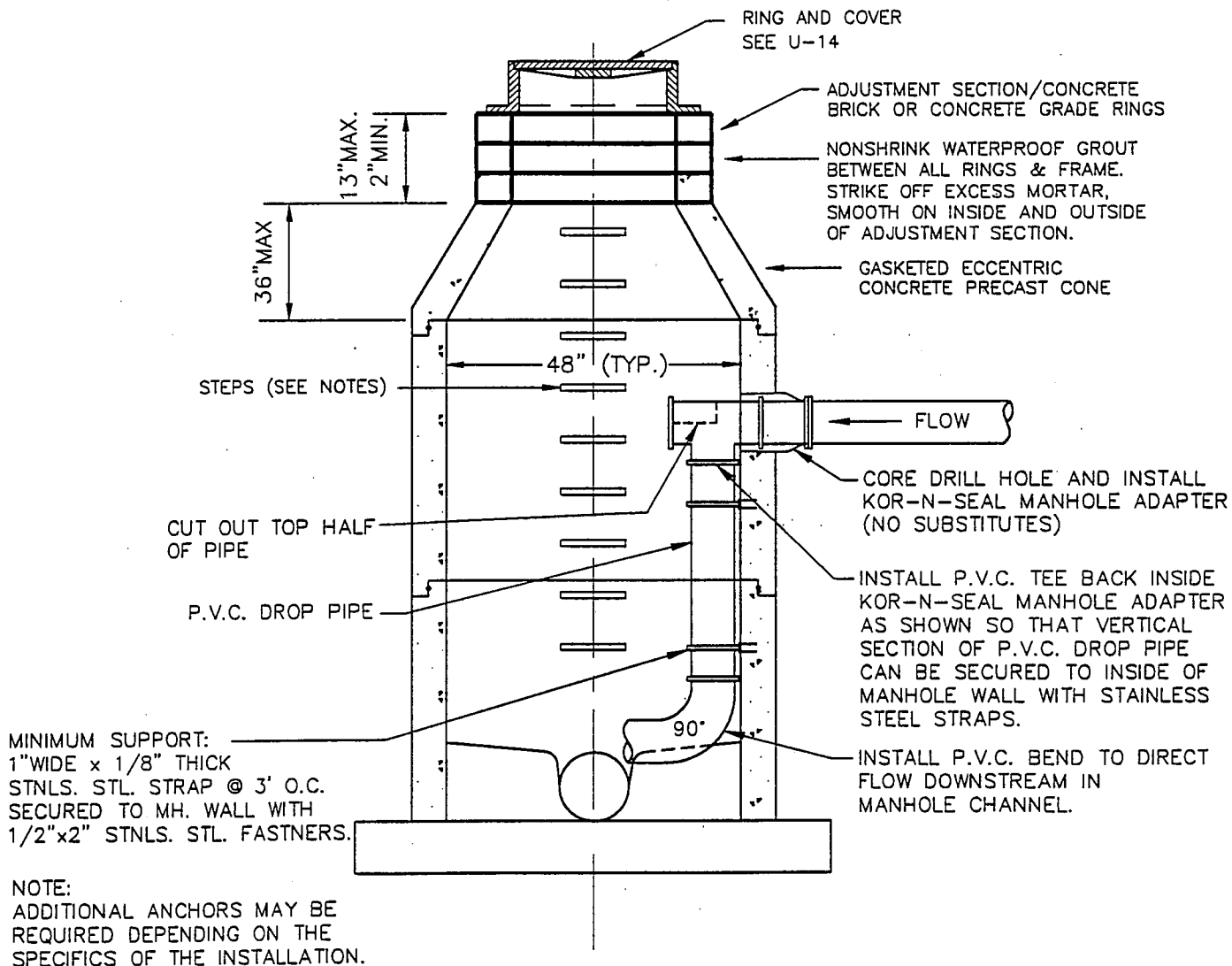
STANDARD
SANITARY SEWER MANHOLE
EXTERIOR DROP CONNECTION

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO. DATE BY CKD. APPR.

REVISION

NOTES THIS MANHOLE MAY BE USED IN SPECIAL CIRCUMSTANCES UPON APPROVAL BY THE SPOKANE COUNTY SEWER DESIGN MANAGER. MODIFICATIONS TO THIS DETAIL MAY BE REQUIRED, DEPENDING UPON THE SPECIFIC INSTALLATION.



EXPIRES 8/20/00

STANDARD U-10

APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
SANITARY SEWER MANHOLE
INTERIOR DROP CONNECTION

SHEET
U-10B

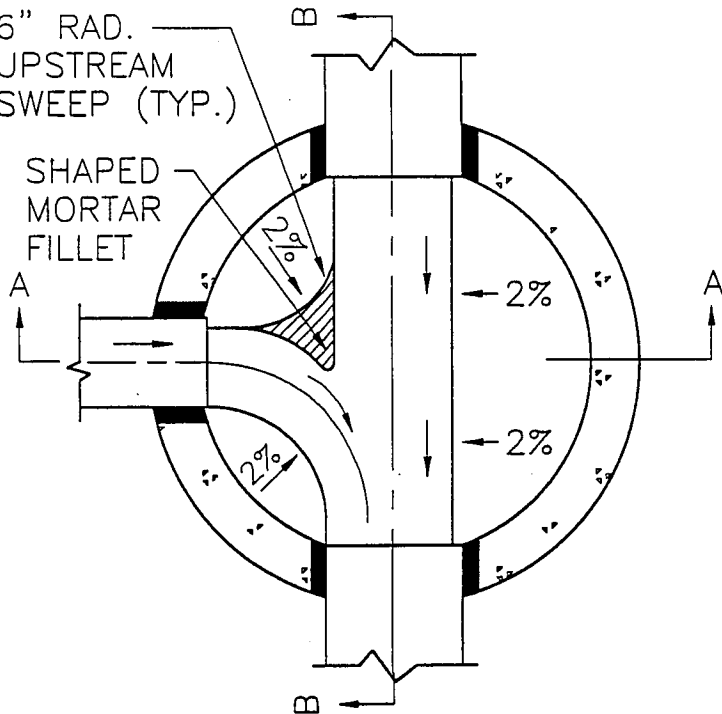
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO. | DATE | BY | CKD. | APPR.

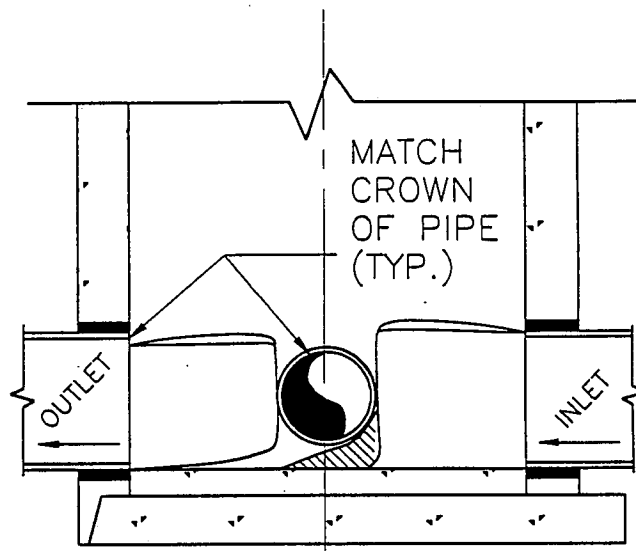
REVISION

6" RAD.
UPSTREAM
SWEEP (TYP.)

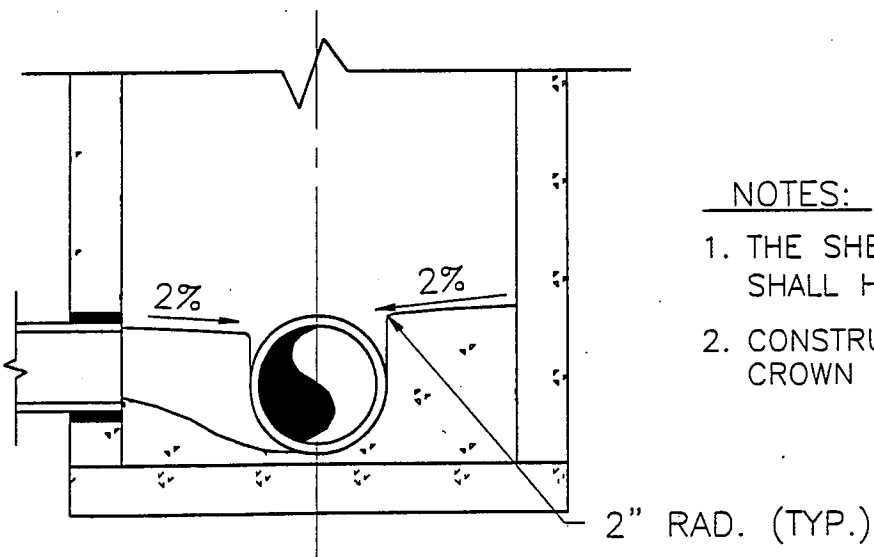
SHAPED
MORTAR
FILLET



PLAN



SECTION B-B



SECTION A-A

NOTES:

1. THE SHELF AND CHANNEL SHALL HAVE A SMOOTH FINISH.
2. CONSTRUCT SHELF TO THE CROWN LINE OF PIPE.



EXPIRES 8/20/00

STANDARD U-11

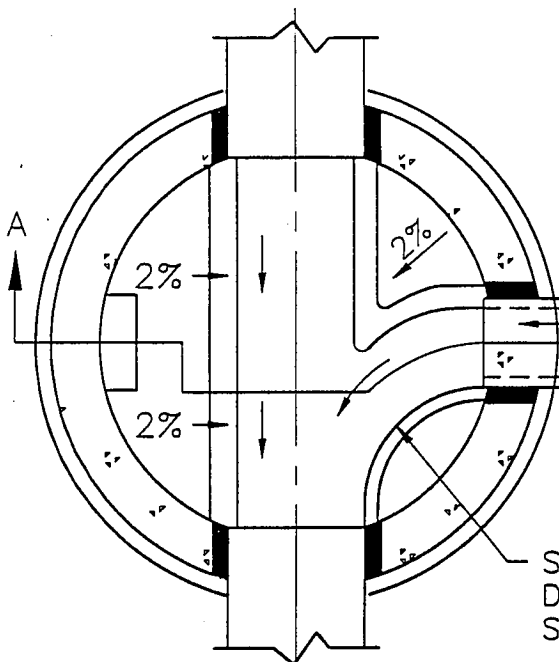
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
TYPICAL CHANNEL DETAIL

SHEET
U-11

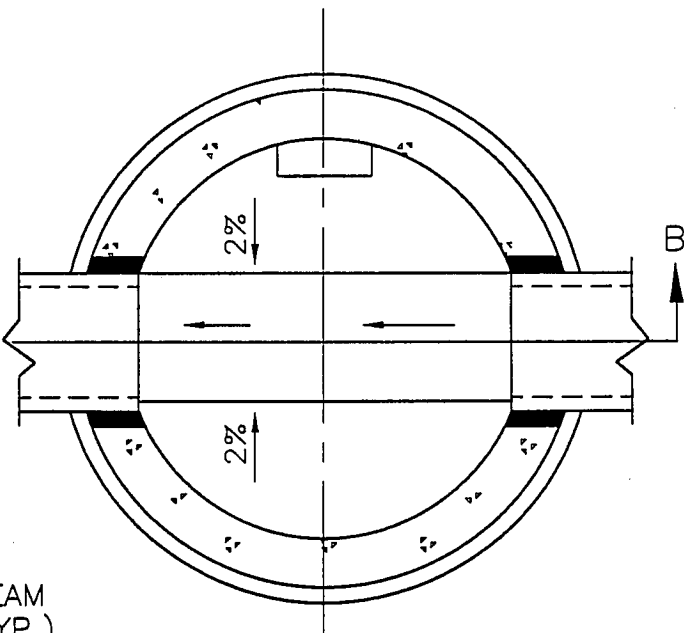
SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CHKD.	APPR.	REVISION



PLAN
(LATERAL DROP)

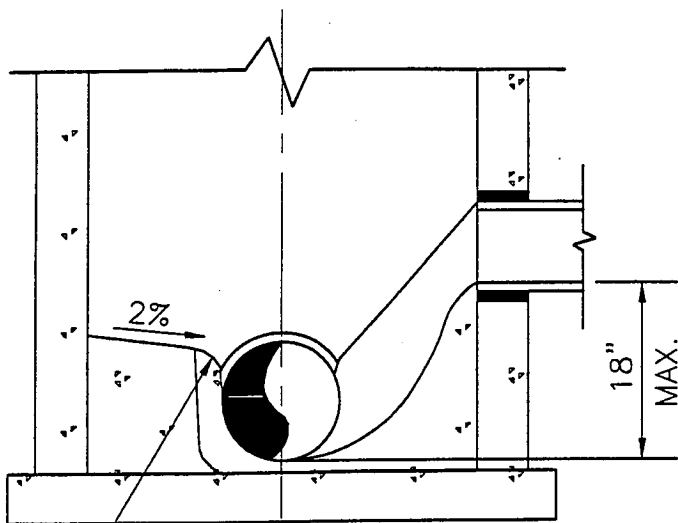
SLOPED
DOWNSTREAM
SWEEP (TYP.)



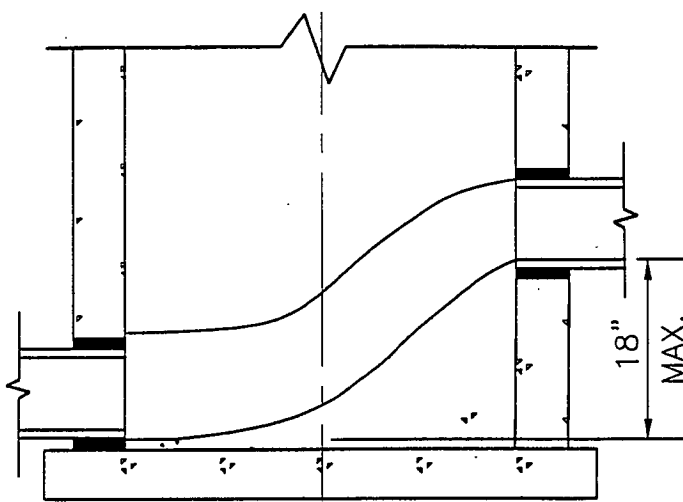
PLAN
(THROUGH DROP)

NOTES

1. THE SHELF AND CHANNEL SHALL HAVE A SMOOTH FINISH.
2. MAXIMUM PIPE SIZE IS 15" DIA. UNLESS OTHERWISE SPECIFIED.



SECTION A-A



SECTION B-B



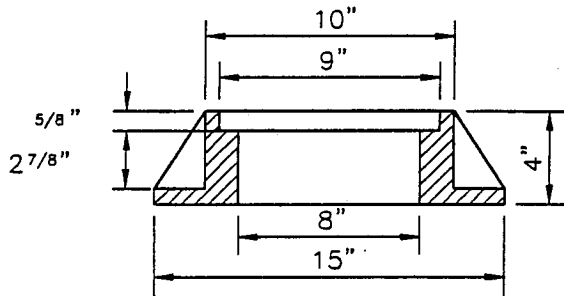
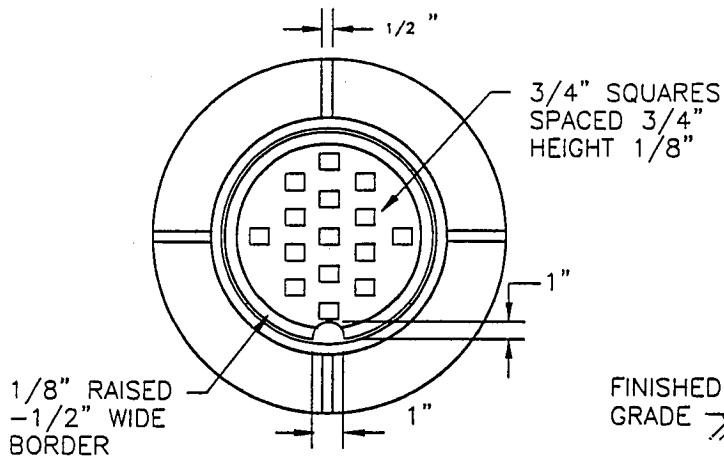
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
INTERIOR DROP CHANNELS

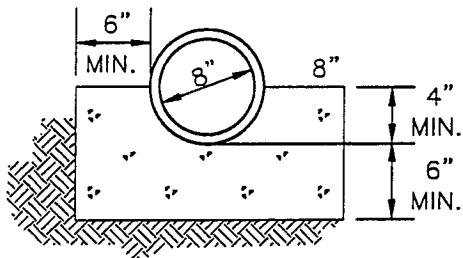
SHEET
U-12

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA., (509) 477-3604

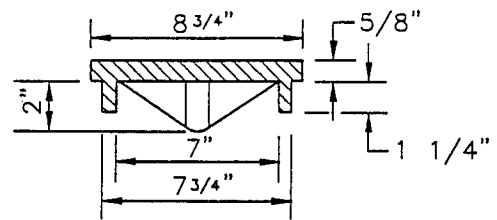
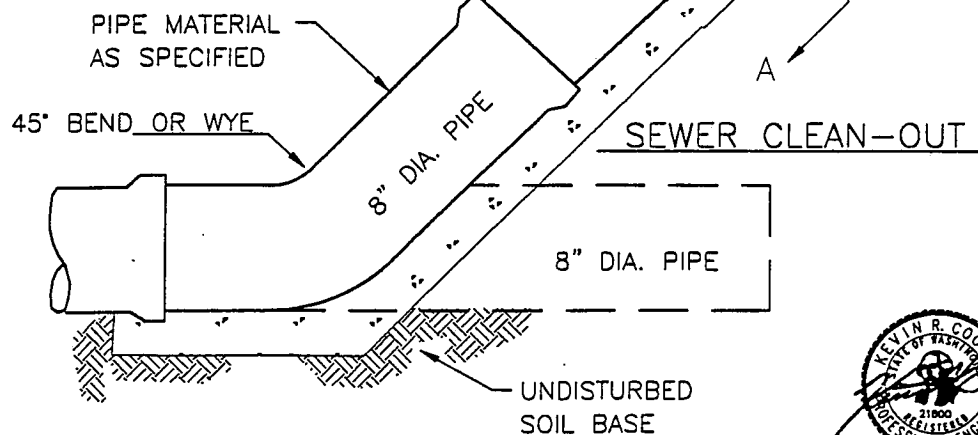
NO.	DATE	BY	CKD.	APPR.	REVISION



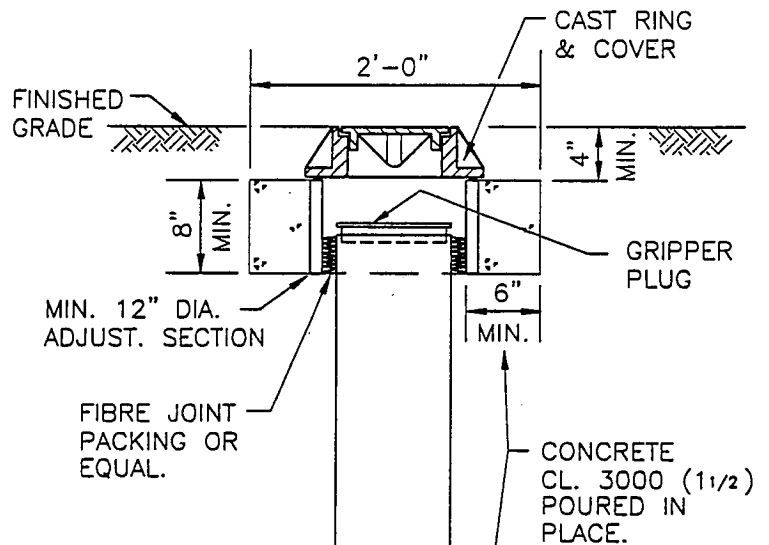
CAST IRON RING



SECTION A-A



CAST IRON COVER



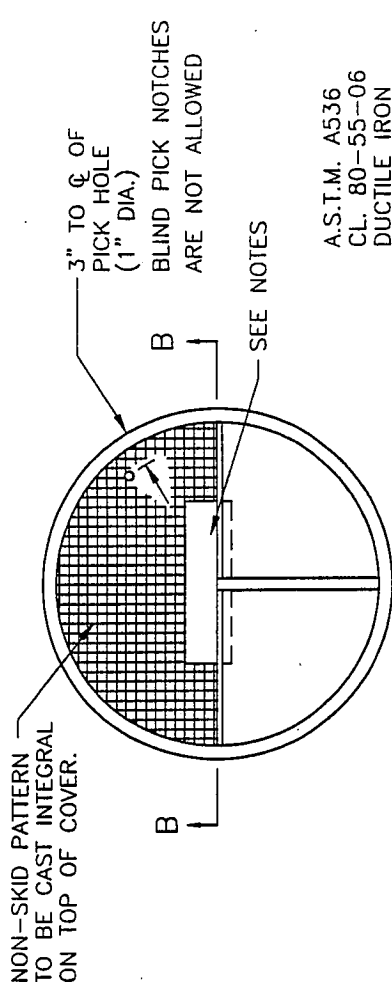
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
MAIN LINE SEWER CLEAN-OUT WITH
CAST IRON RING & COVER

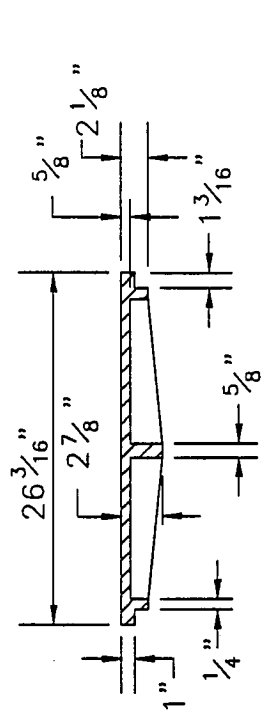
SHEET
U-13

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

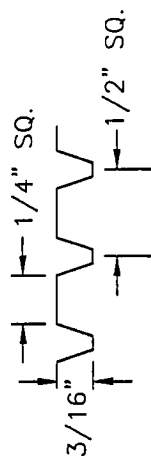
NO. DATE BY CKD. APPR. REVISION



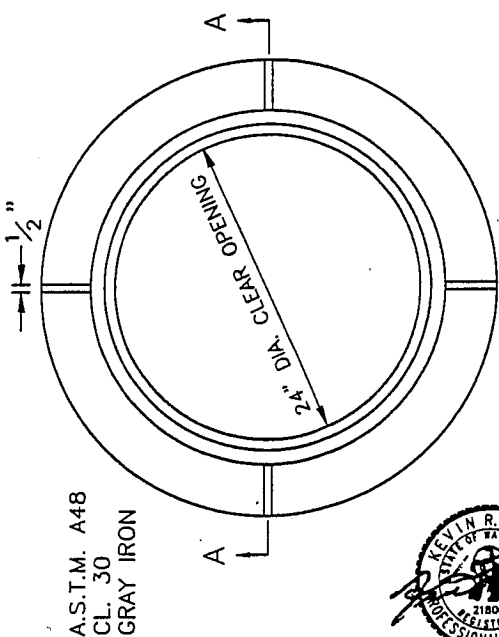
DUCTILE IRON COVER
MIN. WEIGHT 118 LBS.



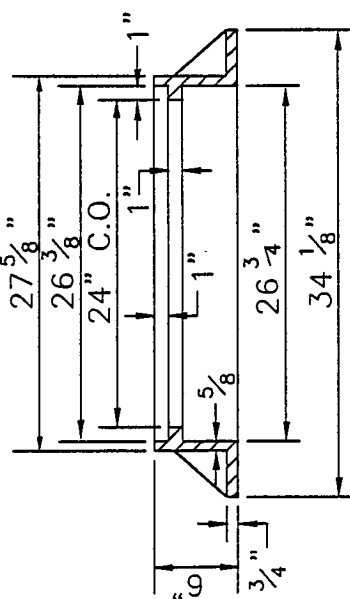
SECTION B-B



COVER SKID DESIGN DETAIL



CAST IRON FRAME
MIN. WEIGHT 168 LBS.



SECTION A-A

NOTES:

1. THE WORD SEWER SHALL BE EMBOSSED ON EACH SANITARY MANHOLE COVER WITH 3/16" RAISED LETTERS.
2. MANHOLE RINGS AND COVERS SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621E.
3. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.



EXPIRES 8/20/00

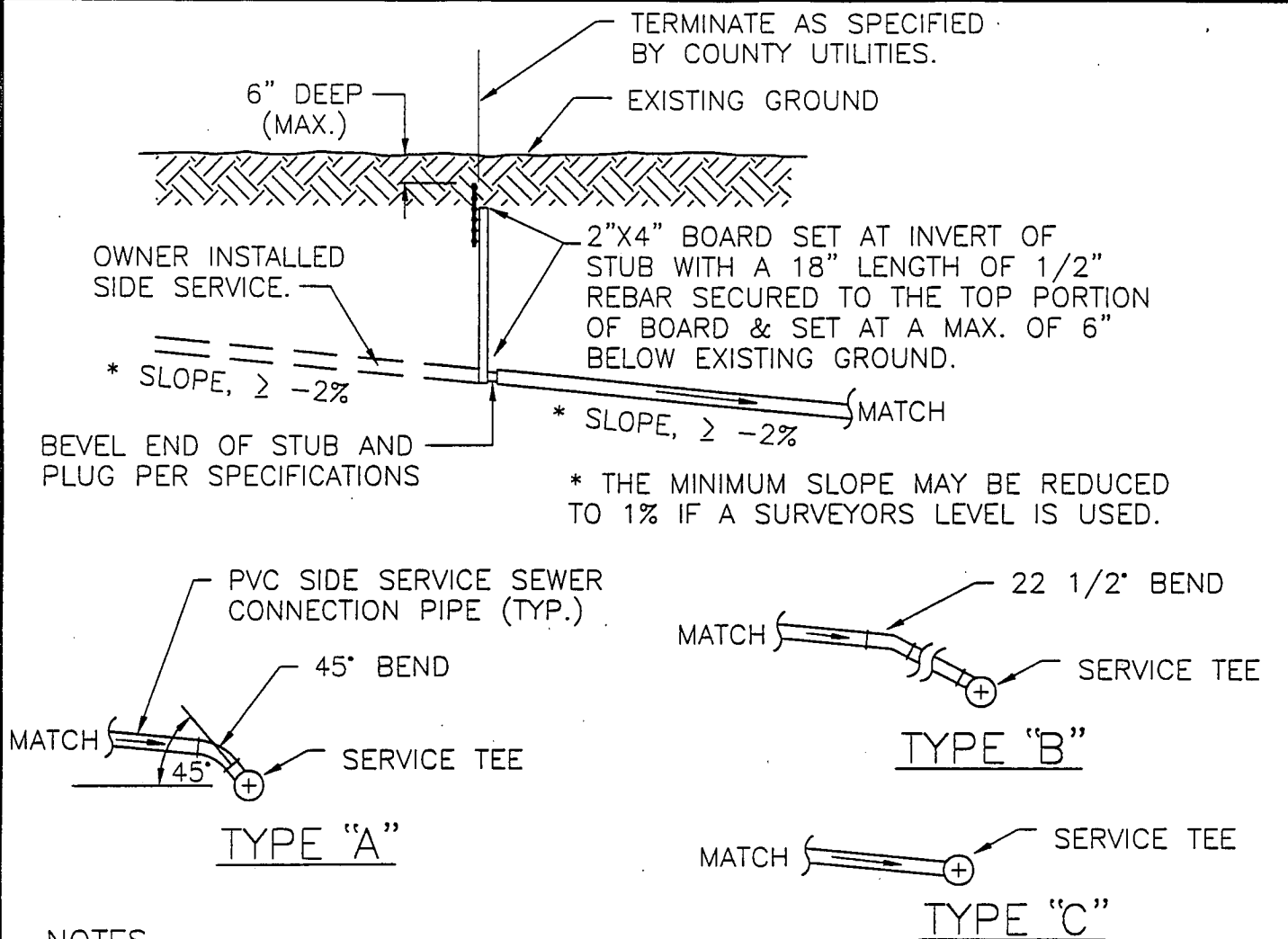
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/13/99

STANDARD
MANHOLE RING AND COVER

SHEET
U-14

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO. DATE BY CKD. APPR. REVISION



NOTES

1. EXTEND CONNECTIONS MIN. OF 5' BEYOND SIDEWALK OR CURB LOCATIONS, OR TO THE PROPERTY LINE WHICHEVER IS FURTHEST.
2. INSTALL PIPE ZONE MATERIAL (BEDDING) PER SPECIFICATIONS.
3. ALL CONNECTIONS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED.
ALL SIDE SERVICES TO BE INSTALLED AT A MIN. DEPTH OF 8' BELOW GRADE AT THE RIGHT OF WAY LINE UNLESS APPROVED BY THE SEWER DESIGN MANAGER.
4. PROVIDE RECORD DRAWING LOCATIONS WITH TWO (2) HORIZONTAL TIES AND ONE (1) VERTICAL TIE TO STUB OR SEWER LINE STATION AND 90' OFFSET DISTANCE TO STUB, DEPTH OF STUB, AND INVERT ELEVATION OF STUB. et al (COMPLETE AND SUBMIT SHEET U-16)
5. INCLUDE STATION AND DIRECTION OF NEAREST MANHOLE
6. RECORD DRAWINGS SHALL BE APPROVED BY THE COUNTY UTILITIES DEPARTMENT PRIOR TO ACCEPTANCE.



APPROVED: NBR
 UTILITIES DIRECTOR
 DATE: 11/18/99

STANDARD
 STANDARD SERVICE CONNECTION

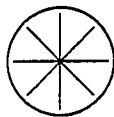
SHEET
U-15

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CHKD.	APPR.	REVISION

CONTRACTOR _____
 INSPECTOR _____
 COMPANY _____
 DATE INSTALLED _____
 STUB: DIA. _____ TEE TYPE _____
 LENGTH _____
 CENTERLINE STATION _____
 LINE NO. _____
 STA. OF AND DIRECTION TO NEAREST MANHOLE _____
 INVERT EL. _____
 DEPTH FROM NATURAL GROUND TO STUB _____
 LOCAL B.M. ELEV. _____
 DESCRIPTION OF LOCAL B.M. _____

 PIPE GRADE _____
 _____ FT. BELOW THRESHOLD
 HOUSE TYPE _____
 REMARKS _____



NORTH
ARROW

NOTE: MAKE TIES TO PERMANENT SURFACE FEATURES SHOWN ON PLANS

PROJECT NAME: _____
 REF. DRAWING NO. _____
 FILE NUMBER: _____
 PARCEL: _____
 STREET: _____
 ADDRESS: _____

APPROVED: N32
 UTILITIES DIRECTOR
 DATE: 4/15/99



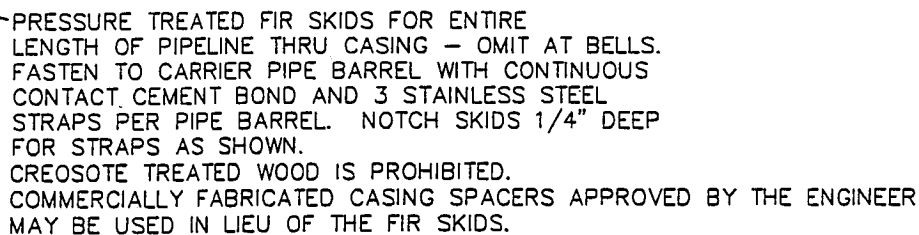
STANDARD
 SIDE SERVICE CONNECTION
 RECORD DRAWINGS

STANDARD U-16

SHEET
 U-16

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



TYPICAL PIPE CASING DETAIL
N.T.S.



EXPIRES 8/20/00

\\STANDARD\U-17

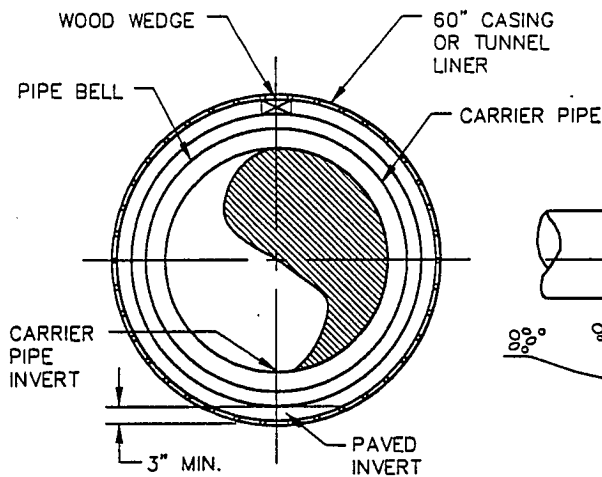
STANDARD

TYPICAL PIPE CASING DETAIL

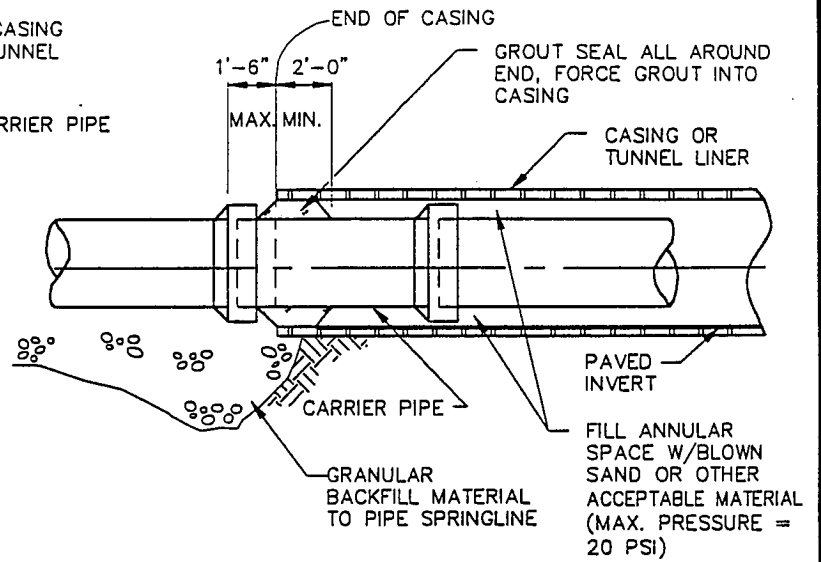
SHEET
U-17

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

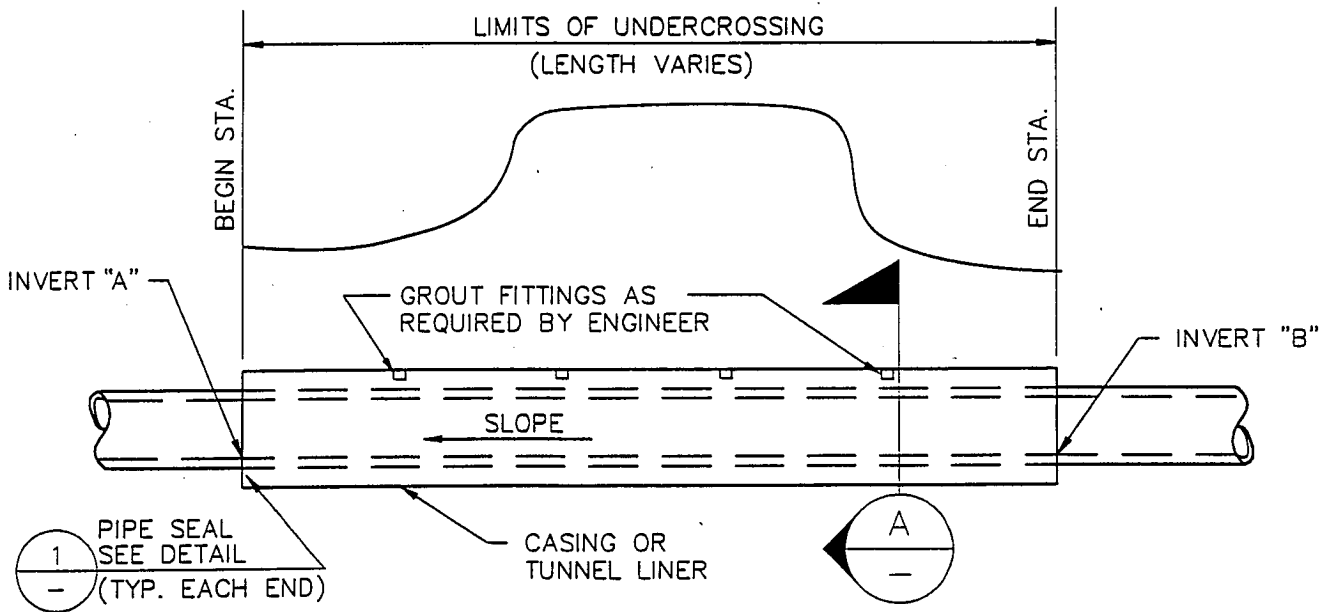
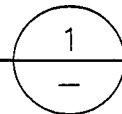
NO.	DATE	BY	CHKD.	APPR.	REVISION



SECTION A



PIPE SEAL



EXPIRES 8/20/00

STANDARD U-18

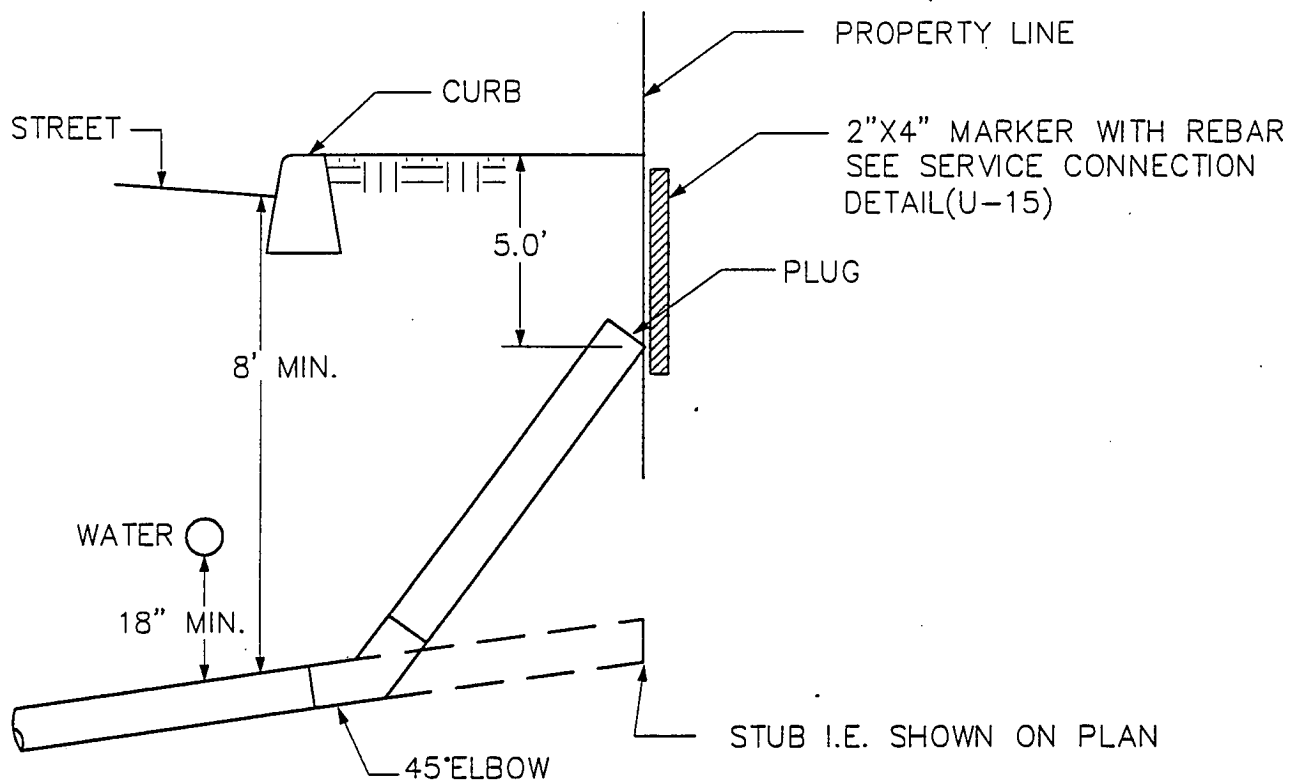
APPROVED: NBR
 UTILITIES DIRECTOR
 DATE: 11/15/99

STANDARD
 TYPICAL PIPE CASING DETAIL
 (CONCRETE)

SHEET
U-18

SPOKANE COUNTY
 DEPARTMENT OF PUBLIC WORKS
 SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION



NOTE:
TO BE INSTALLED ONLY WITH A SIGNED WAIVER
FROM THE PROPERTY OWNER.

SHALLOW CONNECTION

NOT TO SCALE



EXPIRES 8/20/00

STANDARD U-19

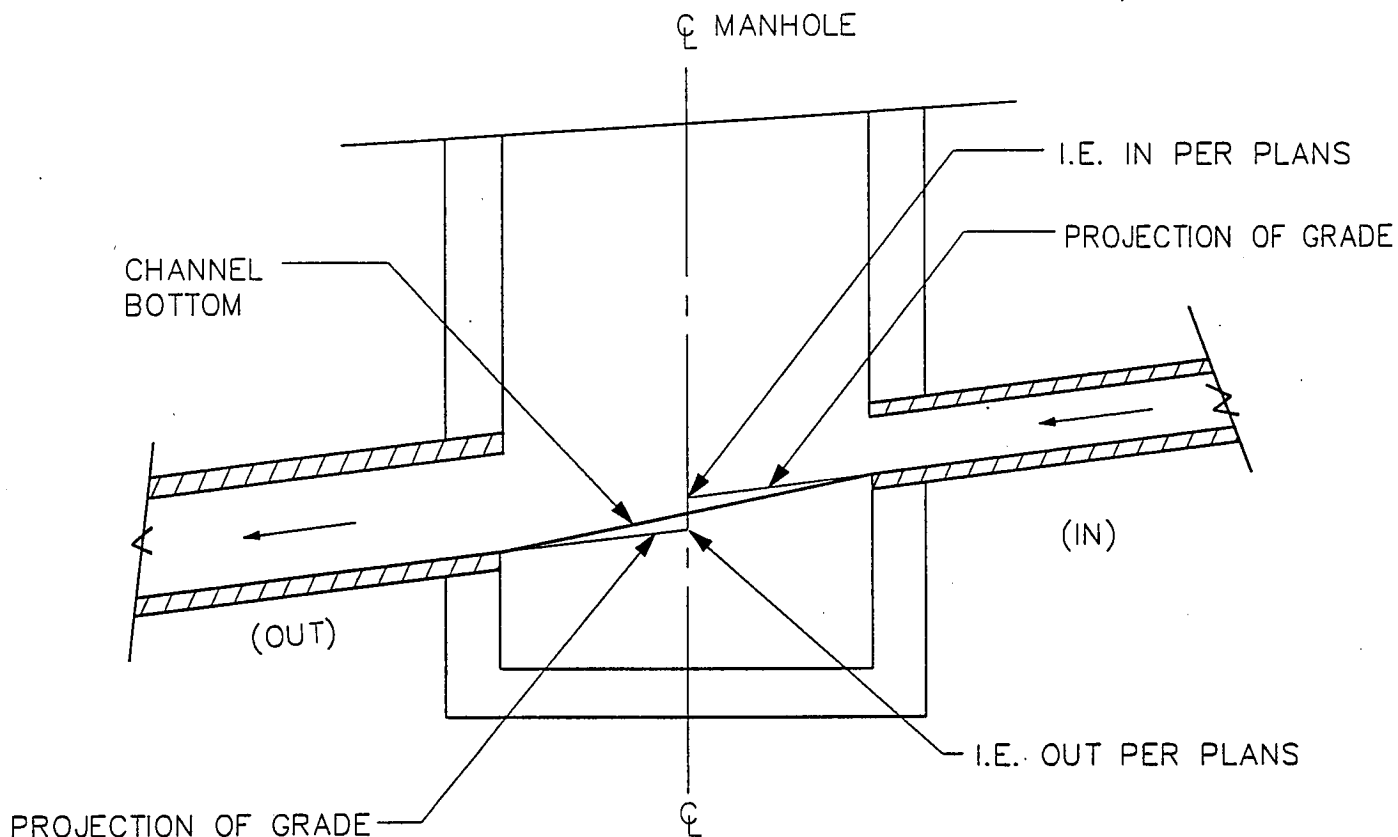
APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
SHALLOW CONNECTION DETAIL

SHEET
U-19

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CHKD.	APPR.	REVISION



MANHOLE I.E. DETAIL

NOT TO SCALE

NOTE:

INVERT ELEVATIONS SHOWN ON PLANS SHALL BE CALCULATED BY PROJECTING PIPE GRADES TO CENTER OF MANHOLE.

THE ELEVATIONS DIFFERENCE BETWEEN THE INLET & THE DISCHARGE INVERT SHALL BE AT LEAST .05' ON CHANNELS WITH LESS THAN 45° BEND AND AT LEAST .1' ON CHANNELS WITH 45° BEND OR GREATER REGARDLESS OF GRADE. UNLESS APPROVED BY SEWER DESIGN MANAGER



EXPIRES 8/20/00 \STANDARD\U-20

APPROVED: NBR
UTILITIES DIRECTOR
DATE: 11/15/99

STANDARD
MANHOLE INVERT ELEVATION DETAIL

SHEET
U-20

SPOKANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SPOKANE, WA. (509) 477-3604

NO.	DATE	BY	CKD.	APPR.	REVISION